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GENERAL VIEW

OF THE

AGRICULTURE

OF THE

COUNTY OF SURREY.

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COUNTY OF SURREY,

WITH

OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.

BY

MR. WILLIAM JAMES, Acad^{ies} Board of Agricult^{e}
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AND

MR. JACOB MALCOLM,

OF STOCKWELL, NEAR CLAPHAM.

DRAWN UP FOR THE CONSIDERATION OF THE BOARD OF AGRICULTURE AND INTERNAL IMPROVEMENT.

LONDON:

PRINTED BY C. MACRAE.

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AND NICHOLAS CARLISLE,

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TO THE READER.

IT is requested that this paper, may be returned to the Board of Agriculture, at its Office in London, with any additional remarks and observations which may occur on the perusal, *written on the margin*, as soon as may be convenient.

It is hardly necessary to add, that this Report is, at present, printed and circulated, for the purpose merely, of procuring farther information respecting the Husbandry of this district, and of enabling every one, to contribute his mite to the improvement of the country.

The Board has adopted the same plan, in regard to all the other counties in the united kingdom; and will be happy to give every assistance in its power, to any person, who may be desirous of improving his breed of cattle, sheep, &c. or of trying any useful experiment in Husbandry.

LONDON, MARCH 1794.

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LONDON, MARCH 1797.

INTRODUCTION.

BOUNDARIES.

THIS county is encompassed on the north-west by Berkshire, on the west by Hampshire, on the south by Sussex, on the east by Kent, and on the north by the river Thames; along which it runs for a distance of twenty miles, and thereby possessing advantages of the utmost importance to agriculture and commerce. It has also three other rivers of less note, viz. the Wandle, the Mole, and the Wey; on whose banks, as well as on the Thames, innumerable manufactories are carried on. From being thus situated, and from its contiguity to the metropolis, together with the great number of noblemen and gentlemen's seats that are every where scattered through the county, it has unquestionably a decided claim to a very distinguished part in the division of this kingdom.

Waste.—Will it not then be matter of surprise, that at the close of the seventeenth century, there shall be found, in a county like this, commons and wastes of the magnitude of 96,000 acres; the much greater part of which, if not the whole, capable of being made subservient to the purposes of agriculture, and thereby enabling us to supply those foreign markets, which stand in need of it, with that superabundance which, to our shame be it spoken, we draw at this time from Flanders, Holland, and America? But as it is our intention to treat of each of these wastes and commons separately, and to describe their extent as well as quality of soil, so we shall

draw such conclusions from the whole, as our observations, founded upon actual views of the same, have enabled us to form.

Contents, &c.—The county is computed to be thirty-nine miles in length, from east to west; and twenty-five miles in breadth, from north to south; and 146 miles in circumference; and, taken as a plane, contains about 481,947 statute acres. There are thirteen hundreds, 140 parishes, and eleven market towns. The upper soil is very various, consisting of black mould, clay, sand, chalk, and loams, of different depths. The under soil is of different strata, but principally composed of chalk and gravel, thereby rendering it dry, healthy, and pleasant. In the interior of the county, the air is mild; and as the soil is generally good, the crops of corn and hay are abundant. The woods, of which there are but few, are promising, shewing at once what it is capable of, and what ought to be done. But in the extremes of the county, and particularly to the south-west, the air is bleak and cold; and, excepting a delightful spot here and there, the soil is an entire sand and barren heath.

Rivers.—The river Wandle rises near Croydon turnpike, and being assisted by other springs at the back of the town, takes its course through Waddon, Beddington, and Wallington; where it is joined by another river, which is formed by several springs, but particularly by two of great magnitude arising in the park of George Taylor, Esq. as well as two from out of the grounds of Thomas Durand, Esq. These collecting into a large and beautiful sheet of pellucid water, in the very center of the village of Carshalton, pass from thence through Mitcham and Merton to Wandsworth, where it empties itself into the Thames; on the banks of which a chain of manufactories are formed, of such extent and value, that no river of the same length can parallel.

The

The river Mole rises in the south-east side of the shire, and is supposed to take its name from sinking into the Swallows at the foot of Box Hill, and working its way under ground, for near two miles, until it comes to Leatherhead, where, according to common tradition, and the maps of the county, it rises again, and running northward, falls into the Thames, at a village from thence called Moulsey.

The river Wey enters the county from Hampshire, near Farnham, runs east to Godalmin, and there turns north, where it becomes navigable to the Thames at Weybridge, being of infinite benefit to the county, which it supplies with all sorts of necessaries, particularly coals from London. It is here worthy of remark, that the first locks that were constructed were erected upon this river by a gentleman of the name of Weston.

The landed property in the county may be divided into three classes, viz. inclosed land, common field land, and waste land. As the improvements to be suggested will principally relate to the two latter, we shall begin with them, commencing at the eastern part of the district. It may be proper, in the first place, however, to remark, that the part which is more immediately adjoining the metropolis has, within a few years, found a value hitherto unknown, which has been occasioned by letting out the land upon building leases; the houses in general are an ornament to the country, if, indeed, we except a spot called *St. George's Fields*, which, either by the oversight of the Committee of City Lands, or from some other cause not very material for us to inquire into, is now rendered a shameful receptacle for every species of vice. We notice this, that those who have the management of other estates may profit by the error which they have committed, and which, if possible, ought to be remedied.

STATE OF COMMONS.

THE property which the Prince of Wales has in the county of Surrey, not far from the metropolis, has been of late much increased in value, but is still capable of great improvement, particularly that little fertile spot well known by the name of Kennington Common, and which, although containing not more than twenty acres, might, from its situation, judiciously managed, be productive of a considerable revenue—I mean by granting building leases. At present it is common for all cattle, without stint, belonging to those parishioners who reside within the Prince's liberty, and who pay a certain stipend per head, which sum goes towards defraying those expences which the keeping up the fences necessarily incur. It is shut up during the winter six months, and opens again in May; but it is no sooner opened, than the number of the cattle turned on is so great, that the herbage is soon devoured, and it remains entirely bare the rest of the season, which proves that no essential benefit is derived from it in its present state.

As far as the village of Dulwich, which is in Camberwell parish, few improvements can be suggested either in the garden grounds, pasture, or arable land; but here we enter a waste called Dulwich Common, the present state of which is an indifferent sour pasture, the soil being chiefly loam upon a strong clay, and for want of being properly drained, and the ant hills levelled, it is become very wet and injurious to sheep, particularly in the winter season. From these circumstances, and being much poached when wet, no wonder that in the summer it is to be seen so full of cracks. It contains 200 acres, and adjoins to Norwood, which is in the parish of Lambeth, and in the See of Canterbury The soil of Norwood is composed of a sandy loam, upon clay or gravel, and is said to contain 600 acres, the greater part

of

of which is in a neglected and uncultivated state; 250 acres is called an inclosed wood; no trees are, however, suffered to grow for timber, because they are cut or lopped every ten or eleven years. The other part of Norwood consists of straggling oak pollards, bramble, furze, and fern; yet capable of producing as good timber, corn, and pasture, as any part of the county. There are, to be sure, many springs in it, but the whole may, with great ease, be effectually drained. Considerable improvements have been made in this neighbourhood by the Right Hon. Lord Thurlow, who has erected in a rural situation, on an elevated knoll, one of the most magnificent houses in the county; and, by a judicious treatment of his land, has led the way for gentlemen and farmers to follow his example; and fortunate would it be for every county, if noblemen and gentlemen's seats were more regularly dispersed, to serve as patterns, and to keep up that spirit for improvement which a neighbourhood of farmers only is not likely to excite or produce; and thence it is, that so little regard is paid to agricultural advancements in the south-east part of Surrey.

Adjoining to Norwood is Penge Common, containing 300 acres; some part of which is at present good pasture; other parts overrun with brambles, furze, &c. The soil is composed of sand, loam, and clay; but requires draining. An inclosure of this common is in contemplation, and a bill to effect it is before the House of Commons, to which we wish success, as the only means of rendering it of lasting benefit to individuals, as well as to the community. In its present state it cannot be said to be worth five shillings per acre; but we have no question that, when inclosed, it will find a value of at least forty shillings an acre.

Between the four and five mile stone on the road to Croydon is a waste called Rushey-Green, or Brixton Common, containing about 150 acres of good loamy soil; but being a flat, and without ditches, the water has no way of draining off,

and therefore produces nothing but rushes and sour pasture. This common is capable of being drained with great ease. The intermediate land near these commons, and to Croydon, is for the most part strong loam or clay, with numberless springs scattered about; but by judicious management, and great attention paid to the collecting of manure from London, and which is purchased at two shillings a load when long, and five shillings for spit or rotten dung, the crops are, therefore, for the most part abundant. Artificial grasses, clover, tares, rye, and turnips, are the prevailing articles of cultivation. A few calves are suckled for Smithfield in this district.

To the west of Streatham is a common of 250 acres, a loamy soil on gravel, great quantities of which have been dug out for gentlemen's gardens, as well as for repairing the roads. But from the little attention that is paid to the preservation of the upper soil, it is left in a state unfit for vegetation; some of the pits are left as they were dug out, and, consequently are full of water; other parts are covered with furze and coarse pasture. But the growth of the elm and oak timber, upon this common, shews to what a profitable purpose it might be applied. The manor belongs to the Duke of Bedford. To the east, adjoining to Streatham, and in front of the Duke of Bedford's house, is a small common of good loamy soil; but being at present in middling pasture, and appearing only a handsome lawn to the surrounding gentlemen's villas, it cannot be applied perhaps to a much better purpose.

A little out of the road, and to the north-east of Croydon, is Croydon Common, containing 350 acres of mixed soils, light sandy loam, clay and gravel. Some part of it is wet in the winter, but the whole very capable of being effectually drained. Those parts which are not wet produce good pasture; but furze, brambles, &c. are suffered to predominate. Considering its vicinity to so large and flourishing a town as

Croydon,

Croydon, whose markets may vie with any other in the county, and its inhabitants of the first consequence for respectability and opulence, many of whom are in want of such land, it becomes surprising that no means have yet been adopted to inclose it, and thereby render it more productive. It belongs to the See of Canterbury.

Waddon Marsh, west of Croydon, contains 150 acres of good land, an inclosure of which might be easily effected, as it is in the hands of only a few proprietors; the pasture is at present only middling. It belongs to the See of Canterbury. Adjoining the last is Mitcham Common, containing 550 acres of various soil, as loam, clay, and gravel; the present produce is only a sour pasture, overrun, in many places, with heath, furze, &c. and although the situation is bleak, and several parts of it wet, yet it might be effectually drained, and produce good crops of grain; for the adjacent lands of the same quality, but in an inclosed state, let at forty and fifty shillings per acre, and there would be no difficulty in letting the whole of this common upon lease at twenty shillings per acre, provided it was inclosed.

South-east of Croydon is Addington Heath and Shirley Common, containing 300 acres; the soil a black land and loam, the whole of which, excepting the summits of the hills, are capable of producing barley, oats, turnips, artificial grasses, &c. and the hills might be profitably planted with firs, &c. It is at present covered with short heath and furze, and cannot be said to be worth more than 1s. 6d. per acre; but if inclosed, would find a rent of from 15s to 20s an acre.

East of Riddlesdown is Hamsey Green, containing about 100 acres of very rich pasture; the soil a deep stapled loam. The manor belongs to Atwood Wigsell, Esq. At a short distance from thence is Wallingham Common, containing 500 acres of deep rich stapled loam, upon a chalk, but very much overstocked; two or three neighbouring farmers receiving the principal benefit from it, having the conveniency of turning

ing on large flocks of sheep; it is nevertheless very much overrun with furze and heath. The farms in this parish are in general large, about 500l. per annum.

Near the sixteenth mile stone on the road to Godstone, is Catterham Common, containing 300 acres of light sandy loam upon gravel; sweet pasture wherever the furze, fern, &c. is kept under. Between Godstone, and Westerham in Kent, we passed over Lympsfield Common, which contains 480 acres; the entrance of which is sandy loam, but improving very much towards the center, where it is a rich loam, capable of producing all kinds of grain as well as timber, instead of which is found heath, furze, and in some parts beech, birch, and oak coppice wood, all of which thrive well. But the copyholders claiming a right to turn in cattle, as well as a privilege of weeding the wood, is the reason why timber is not suffered to get up. Adjoining to the above is Eden Common, containing seventy acres of wet pasture, which, by draining, levelling the ant hills, and altering the course of a very crooked brook, might be converted into good land, which in its present state is but of small value. Two miles to the south is Stafford Wood, which contains 150 acres; the soil is a loamy surface upon clay. Part of this common wood-land is overrun with brambles, briers, and furze; other parts of it consist of oak, beech, and birch underwood, with some timber of a large size, but by no means under a good profitable system. A few years ago, several were cut down, containing about two loads of timber each tree; a strong proof this, how much it is to be lamented, that the freeholders and copyholders should have a right to turn on an unlimited number of cattle of every description, to the utter destruction of the young and tender saplings. This wood, were it under good management, would yield as fine timber as need to grow. Mr. Eden, the late lord of the manor, was at much expence in planting a great number of trees, which, as his successors have injudiciously

failed

failed to protect from cattle, the much greater part of them have from time to time been quite destroyed.

On the high turnpike road to Grinstead in Sussex, and a little beyond the twenty-four mile stone, is Blindley Heath, containing fifty acres of sour pasture; the soil is a deep stapled yellow clay. This common wants draining. One mile from this is Lingfield Common, containing 200 acres of pasture capable of great improvement by inclosing, the soil being a dark hazle mould, and rich loam. Pacon Heath, nearly adjoining, consists of seventy acres of light sandy loam, covered with juniper, furze, and fern.

Felcot Heath, north-west of Pacon Heath, containing 250 acres, covered with heath, &c. the soil a black sandy surface upon loam. Hedge Court Common includes 160 acres of light sandy and gravelly soil, covered with low heath; and joins to Copthorn Common, which contains 750 acres, and producing the same sort of heath as Hedge Court: the upper soil black sand, sub-soil a yellow hungry loam; some of the low parts are boggy, but very capable of being drained, having a brook running through it. The hilly parts would grow the different kinds of firs, particularly larch, beech, and birch; the two latter thriving well in the circumscribing hedge rows. Frogwood Heath consists of 200 acres of light sandy soil, covered with heath, furze, &c.

To the north-west is Horley Common, containing 600 acres of strong loam and deep clay, particularly calculated to the growth of oak timber, and which in this neighbourhood is very scarce. Upon a very nice examination of this common, we find it capable of being turned to the most profitable purposes, and is now suffered to remain in a very neglected state: the nature of the soil being so stiff, and being continually poached during the autumn and winter months by cattle, it becomes so condensed as to hold water like a bowl, and which consequently produces nothing but a sour unwholesome herbage. The inclosing therefore of this common

mon would effectually remedy this evil. Sheep are here very subject to the rot.

Lawfield and Westfield adjoining, contain 230 acres of light loamy soil: some parts are wet, but dividing them with proper ditches would effectually drain the whole; it is at present covered with heath, furze, &c. A few sheep and young beasts are occasionally turned on, but so poor and trifling is the herbage that they are but barely kept alive.

Wetherhill, in the parish of Nutfield, is a small common of about sixty acres of wet sour pasture, although the soil is a good loam. Smallfield is nearly like unto the preceding as to soil, &c. and contains about eighty acres.

Outwood Common contains 400 acres of poor land, consisting of sand, gravel, and some loam, covered with furze, heath, and bushes, with a small quantity of young timber thereon; some parts of it are wet and very boggy, and there have been instances where cattle, which at times have been suffered to remain there, have been lost. This, among other reasons, would be an argument for inclosures.

Red Hill Common, about one mile and a half from Ryegate, contains 450 acres; the low parts of which are a strong loam and clay, and is at present tolerable good pasture, notwithstanding it is much overrun with furze; the upper or hilly parts are composed of a light rich yellow loam, and the whole well calculated to produce all kinds of grain in abundance. Its proximity to Ryegate would render an inclosure very desirable.

Ryegate Common is about 150 acres of light loam, covered with furze. Cadbrook, 160 acres of sandy loam, covered with furze.

Holm Wood Common, 400 acres of strong loam and clay, well adapted to the growth of oak, chesnut, and other timber trees, particularly on the hilly parts: the rest might be converted into pasture, &c.

Leith Hill and Hurtwood contain 3200 acres of similar land as the preceding.

Headly

Headly Common may contain about 900 acres of various soils, such as sand, loam, gravel, and clay, and which is at present covered with furze, heath, and fern; it is, however, well calculated for the growth of corn, turnips, and artificial grasses. Walton, Kingswood, and Banstead Commons, which, laying together, and joining to Headly Common, may contain 1500 acres at least. The manor of Kingswood belongs to William Jolliffe, Esq. of Meastham, who has it in contemplation to inclose it, thereby setting a good example to the gentlemen in his neighbourhood. It may not be amiss to observe here, that it might be well worth the notice of the lords of the manors of Walton and Banstead to join Mr. Jolliffe, and inclose the whole under one head. The several parts of these commons, that are hilly, might, with very great propriety, and profit too, be applied to the growth of larch, firs, Spanish chesnuts, beech and birch; and the rest would produce good corn and pasture. At present the whole is covered with heath, furze, and fern, and cannot be worth more than half a crown an acre; but under a proper system of inclosure would find a rental of from twelve shillings to twenty-five shillings per acre.

Sutton Common contains 250 acres of rich loam, some parts of which are in good pasture, and therefore evidently shews to what good purposes the whole might be applied.

Cheam Common, similar to the preceding, is alike deserving improvement, and contains 320 acres.

Ewel Commons and Marsh may contain, together, 350 acres of good loam, upon gravel and chalk, very deserving of cultivation. The marsh land, especially, would make good meadows, if divided.

Epsom and Leatherhead Commons join together; the soils are loams and clay, upon gravel, and may contain 1200 acres at least; the much greater part is covered with furze, brambles, hawthorn bushes, large quantities of

hornbeam, and other pollards. Other parts of them are a sour wet pasture. It is much to be lamented, that a tract of land, such as is here described, adjoining to the town of Epsom, and equal in quality to any of the circumadjacent inclosures, should at this period remain in such an unprofitable state. We have no difficulty in saying, that this land is capable of yielding all kinds of grain and timber; and, if inclosed, would would fetch from 15s. to 35s. per acre. On Epsom Common is a mineral spring, which some years ago was famed for its efficacy in curing various diseases; at present it appears to be in disuse, and going fast to decay.

Fetcham Common contains 250 acres of light loam, covered with furze, heath, &c. and joins to Bookham Common, which is a large tract of land at least 800 acres, of light loam, clay, and gravel, covered with heath, furze, bushes, and pollards; at present in a very unproductive state, but capable of growing good corn and timber.

Clandon Common measures nearly 150 acres, and is composed of light loam upon chalk, covered with heath and furze; the down land is not included in the 150 acres. It may be worth observing here, that the herbage on this down is short and sweet, affording fine food for sheep; but in many places, the *bromus pratensis* makes its appearance, which, being a harsh wirey grass, no cattle will touch it, consequently as the seeds are not prevented from attaining proper maturity, so they are scattered to an immense distance by every wind, to the manifest injury of every good pasture in which they may chance to fall. It would be therefore good policy to destroy every vestige of so useless a plant. We have not observed it to be an indigenous plant of any other part of the kingdom.

Cobham Common, including Chatley Heath, Downside Common, Cobham Tilt, and Fair Mill, may contain 2000 acres, the whole of which is now in a state of inclosure, an act of parliament having been obtained for that purpose.

purpose. Twenty acres of this common were sold, in order to defray some part of the expence, and produced the sum of 1260l. This surely will prove to lords of manors, and others, concerned in commons, how much value they are of, in a state of inclosure; and requires but little inquiry and exertion, to convert every unprofitable acre in this kingdom to the greatest possible advantage. No part of this tract of land is superior, if equal, to many of the commons before described, in point of soil. Three hundred acres of this waste are allotted to the poor, in lieu of their commonage. It is at present covered with short heath and furze, and cannot be said to yield more than 1s. 6d. per acre.

Pease Marsh, between Guildford and Godalmin, contains 803 acres, partly loam, partly clay, and partly marl. Upon the skirts of this common are some brick kilns, and the clay is dug out for the purpose of making bricks. There are to be seen on some parts of this common such a number of ant hills, that it is really dangerous to ride over it. From the total neglect of this valuable common, the cattle that depasture thereon are almost starved; it is, however, so much coveted by the inhabitants of Godalmin and Guildford, that it would, in an inclosed state, find a rental of from fifteen to thirty shillings per acre.

Shakleford Common contains 150 acres of light loam; at present it is covered with heath, furze, &c.

Addlestone Common contains 150 acres of rich loam; at present it is good pasture, but is much in need of draining.

Hersham Common contains 200 acres of good loamy soil, covered with heath, furze, &c. The wet parts of this common might easily be drained.

Esher Common is composed of 500 acres of loamy soil; an inclosure is here very desirable, as during the winter months it is very wet, and the herbage, in consequence, spoilt. The common ditches of an inclosure would effectually drain it, and increase its value nearly twenty shillings per acre.

Kingston Common contains 430 acres, at present covered with furze, brambles, &c. As the soil is a good loam, upon gravel and clay, it is very deserving of being inclosed.

Norbeton Common contains about 320 acres of a similar soil.

Wimbledon and Putney Commons adjoin, without any division, and may contain 1000 acres; the soil is various, consisting of stiff clays, loam, sand, and gravel; 200 acres of these commons may be covered with hornbeam and oak, pollards and brush woods, &c. the rest is overrun with furze; but where any considerable portion is cleared, the pasture is sour and unwholesome, for want of proper drains to carry off the water. The great road from London to Portsmouth, passing over these commons, the easy distance from the metropolis, but above all the number of gentlemen's seats which nearly environ them, and the example which the present Earl Spencer has shewn, both as to the manner and the effect of covering such parts as might be agreeable, with plantations, it is only matter of surprise, that they should so long have remained in their present uncultivated state.

Barnes Common may contain 200 acres of light sandy loam upon gravel; some parts of it are wet in the winter, and covered with furze. Part of this waste was inclosed for the use of the workhouse, and it now produces all kinds of vegetables in great abundance, together with corn and artificial grasses.

Wandsworth Common, consisting of about 350 acres of good loamy land upon gravel, is wholly covered with furze, well adapted to the growth of grain and timber.

Battersea and Clapham Commons adjoin, and compose but a few acres, say about fifty, of very light loam upon gravel, in many parts very shallow, and consequently very unfavourable to horticulture; it, however, yields an abundance of gravel for the roads and gardens, fern and furze for the bakers, and under those circumstances it may be as productive in its present state as if it were inclosed. It affords an agreeable and

safe retreat for many of the most opulent merchants and bankers of the city of London (perhaps of the world), which its contiguity to the metropolis also makes desirable, and who have fixed their residence here. It is not, therefore, to be wondered at, that these commons should be circumscribed, and that the price of land, otherwise not worth five shillings per acre, should have found a value perhaps no where paralleled out of the metropolis. The only thing wanting to complete the scenery of the situation, would be to destroy the greatest part of the furze and fern, and lay it down to grass; to intersperse evergreens among those forest trees that are already planted there, and to scatter a few more clumps upon a better scale; the whole would then have the appearance of an ornamental paddock.

HEATH LAND.

THE first of any considerable extent, is situate about four miles south of Guildford, called Black Heath; containing 1000 acres of different coloured sands of various depths, producing nothing but short heath; its situation is high and exposed, and the greatest part so poor, that it is unfit for any thing but plantations of firs, but especially Scotch and larch. There are parts of it in which beech, birch, and chesnut would grow well.

Munsted Heath contains 220 acres of light sandy loam, covered with heath and furze, capable of being applied to various agricultural purposes; and its contiguity to Godalmin would render it of great value.

Hydon's Heath contains 450 acres, chiefly sand and gravel; some parts sandy loam. The skirts would produce good corn.

Wormsley and Hamilton Heaths nearly of a similar soil, and contain 350 acres.

Hind Head contains 3100 acres, chiefly sandy soil, although

many

many spots are loamy, the whole of which might be most profitably planted.

Frencham, Thursley, and Whitby, contain 5800 acres of deep sandy soil.

Farnham and Crooksbury contain 3700 acres of deep sandy soil. The valuable plantations of firs on these heaths demonstrably prove to what a profitable purpose they may be applied. Here we have no occasion to bring in aid the use of argument, to prove the consequences of planting barren heaths. The facts speak for themselves, and therefore we cannot do better than bring them to view. Twelve acres on Crooksbury Heath were planted in 1776 with Scots firs of four years old, at only four feet apart; the ground was no ways prepared, but the holes were simply dug, and the plants put in. In the year 1788 they were thinned out, being then about the height of fourteen feet, which produced ninety-six trees, and were worth eight pound per acre; the thinnings were sold for hop poles, and the branches were made into bavins, provincially bairns, for burning of lime. It must be here remarked, that a Mr. Giles of Farnham has for years used no other poles for hops than firs, and which he has found to answer full as well, if not better than ash or alder; those he has in present use have been so for nine years, and at this time are perfectly sound; he has also attended with much accuracy to their durable qualities, as applied to the purpose of poles, and he finds that the larch is the best, the Weymouth second, and the Scots and spruce the least. The second thinnings are now taking place, and the trees converted into scantlings, rafters, and for other internal purposes; they are about forty feet in height. The number of trees at present standing on the twelve acres are computed to be 18,531, and are valued at the sum of 573l.

Tuxbury Hill contains 600 acres of similar soil.

Bagshot Heath, including Romping Downs, Frimley, Burbright, Cholbam Ridges, Surrey Hill, Windlesham, Kingshill,

Kingshill, Woodham, Ham, Haw, Horse Hill, Pirford, Woking, &c. contain 32,000 acres, the whole of which may be said to be covered with short heath. Upon traversing these cold and exposed wastes, we saw only a few starved animals unworthy the name of sheep. From what circumstance the title of Bagshot mutton has derived its name, is perhaps now very difficult to be discovered: certain it is, that no animal can live upon these wastes in their present state; probably ere long the proprietors or lords of manors, and others therein concerned, may, in consequence of Basingstoke Canal passing through an extent of sixteen miles from Romping Downs, to Woking and Weybridge, find it their interest to apply some parts of this considerable waste to some useful purposes of agriculture. It was in contemplation some years since, to inclose a tract in Windlesham parish; but we could not learn the exact reason for its not having been carried into effect.

Weybridge and Walton Heaths contain 3500 acres, at present covered with furze: many spots may be found capable of producing good corn, and the highest and most exposed hill would produce timber; witness the Scotch firs, &c. on Saint George's Hills.

REVIEW OF THE FOREGOING.

IN looking over the tract of country before particularized, three things appear indisputable; the first is, that there does absolutely exist in this county the quantity of land as described, (as near as can be ascertained without measurement) at this time in commons and actual waste; and the second is, that in consequence of this waste, just so much grain as a certain portion of this waste would, in a state of agriculture, produce to the community, we are obliged to our neighbours on the continent for; and lastly, that just so much labour as the cultivating this portion of waste would require, the poor are deprived of; and, by consequence, is a material loss to population.

From

From very authentic documents in our possession, it appears, that the actual quantity of grain brought into this country, as well as exported, on an average of three years, under the heads of barley, beans, oats, rye, wheat, and pease, are as follow:

IMPORTED.

Barley.	Beans.	Oats.	Rye.	Wheat.	Pease.
69,793	30,245	842,229	30,361	217,038	3,445

FOREIGN CORN EXPORTED.

277	1,049	4,291	909	14,933	398

BRITISH CORN EXPORTED.

15,994	9,055	14,106	5,666	85,501	5,685

CORN IMPORTRD EXCEEDS THE EXPORTED BY

43,522	20,141	823,832	23,786	116,604	——

N. B. The quantity of pease exported exceeds the imported, by - - - 2,638 quarters.
Malt exported, - - - - - - - - - - 30,426 ditto.

	Quarters.
Barley brought down, - -	43,522
Beans, - - - - -	20,141
Oats, - - - - -	823,832
Rye, - - - - -	23,786
Wheat, - - - - -	116,604
	1,027,885 grain imported, exceeding the exported

Quarters.	
By - 2,638	pease exported,
30,426	malt ditto,
—— - - - - -	33,064 exported.
	994,821 balance in favour of the imports.

	Acres.	Acres.		Qrs.	£. S. D.
Waste, - -	¼ of 96,000 =	24,000	at 3 qrs. per acre, =	72,000 a 27s. =	97,200 0 0
Common field,	¼ of 12,000 =	at an average of 31 bl. to the acre, =		11,625 a 27s. =	15,693 15 0
				83,625 =	£.112,893 15 0

N. B. Thirty-one bushels is the average produce of grain, per acre, in the common field land, of which there are about twelve thousand acres.

In order to make it all as clear as possible, I have brought it into figures as above; by which it will appear, that having subtracted the foreign corn exported, and the British corn exported, from the whole of the corn imported, the remainder is left by inference for home consumption. We then say, that if the consumption exceeds the produce of this country by 994,821 quarters of grain of different sorts, as appears by the table, just so much the more necessary does it behove us to take such immediate steps as may make every uncultivated acre suitable to the growth of corn, (as well as to remove every impediment that may stand in the way of making the whole) as productive as possible. Suppose for a moment, that out of the 96,000 acres of wastes and commons which are now to be found in this county, you take one fourth, as being of sufficient quality to produce good corn, and that each acre would upon an average yield three quarters of wheat, barley, rye, or oats, &c. (and which may be near the mark, as the present inclosed and common fields average about four quarters) that would amount to 72,000 quarters, valued at 97,200l. to which we add one fourth, for the increase of the produce by inclosing the common field land, and which we think ourselves warranted to take, being something less than the proportion of rent every where offered to us by the present occupiers of those lands, and that will yield 11,625 quarters of corn, which together make 83,625 quarters of corn over and above what is grown in the county of Surry, and which, upon the average price of all the grain together, (i. e. 27s.) will net the sum of 112,893l. 15s.

From this statement, and as the Board will necessarily be put in possession of all the waste and commons, as well as common field land in this kingdom, they may with sufficient accuracy calculate the quantity of grain which this country ought to grow, (with every impediment out of the way) communibus annis.

But lest it should be said that we are too sanguine in our calculations, let it be understood, that they are made not in

the closet only, but after a very minute examination of every spot described. But admitting that we are too confident in our conjectures, take one half from our supposed produce, and see if that is not an object of national concern.

THE MANNER IN WHICH THE LAND IS POSSESSED.

IT does not appear, that in this district the land is generally possessed by large proprietors; and its contiguity to the metropolis, as well as the salubrity of its air, may contribute in some degree to produce this effect: it will not, however, admit of a question, but that there are some very large proprietors. However, as that is no criterion, it may be taken for granted, that there are perhaps few counties where the land is possessed in a fairer proportion. Neither are the farms occupied in an extreme, as to extent. Perhaps it may be said, that a great many are too small, being from thirty to forty pounds a year, and very few exceed from 3 to 400 pounds, probably 130 pounds a year may average the county. It is generally observable, that upon these very small farms, every species of bad husbandry is practised; foulness of the land, the want of ability to manure the soil, a poverty of produce, and the occupation in a state little better than that of wretchedness and misery, too strongly evinced by their more wretched habitation.

LAND HOW EMPLOYED.

FROM the natural formation of the county of Surry, as well from the information which this Survey has furnished us with, it clearly appears, that the arable greatly exceeds the pasture land; and considered in that light, it is not to be expected, that men will pay so much attention to the quality of their

their pastures, as to be at all curious about the introduction of new grasses, however strongly recommended by their peculiar good properties; and which in their opinion may not be considered as even secondary. The only pastures of any extent, are those which are to be found in the neighbourhood of the Thames, and these not in the best state of improvement; indeed very little fine hay is to be met with in any part of the county.

LIVE STOCK.

WITH respect, however, to the stock, we shall beg leave to say a few words. The sheep most prevalent, until of late date, were the North Wilts, (which are distinguished at Smithfield by the name of the Wiltshire horned sheep) and Dorsetshire, with a few Lancashire rams; but the South Downs are exterminating the former very fast; at least among those farmers whose ideas are not crampt by prejudice, and otherwise wedded to old customs. The South Downs and Dorsets too are found to be much more hardy, better nurses, more tractable, less given to rambling, and to bear hard driving to the fold better. The flesh of the South Down is allowed to be as fine, if not finer than that of the so long famed Norfolk. The wool of the South Down is found to be not quite so abundant as the Dorset, but equal to the Wiltshire, which is a much larger animal; the South Down yielding about four pounds to the fleece, and the Dorset between four and five pounds. But then the quality of the wool of the South is superior to the Dorset, and exceeds the Wiltshire at least from four-pence to sixpence in the pound weight. The Norfolk and Suffolk, which at one time pretty generally prevailed in many parts of this district, have with good reason made way for the two other kinds before mentioned.

tioned. The objection which many intelligent farmers have started against them, is not, as may be supposed, against the quality of the flesh, in which they allow them a superiority, (but with what reason they are at a loss to account) during the cold months; but because in that part of the county where common fields prevail, it was not possible to supply them with green food to keep them on; (and that is one objection also against the Wiltshire) and consequently the other sorts being more hardy, would live tolerably well on middling food, and necessarily well on better, and consequently they would be much behind the others in condition for sale. The mutton of Bansted Downs, in this county, has been long famed for its excellent quality, and upon examining the cause with every possible attention, it appears to proceed from the fineness of the pile, which exactly resembles that which grows on the South Downs. Perhaps there may be something in the air and the exposure; but certain it is, that these Downs are constantly kept very hard stocked, which by keeping the herbage down short and sweet, it will unquestionably support a greater number, than when it is suffered to get long, which inevitably causes it to get thin at bottom. The herbage is mixed with large portions of the English white clover, trefoil, and not a little of the *thymus serpyllum*. Too much cannot therefore be said in favour of this sort of stock; and when that period arrives, which we hope is not far distant, that the common fields shall be inclosed, and that great portions of green meat can every where be raised, the farmer will be enabled not only to increase his stock, but to fold more land—a practice which no one ever doubted the good effects of, especially since it frequently happens that a farmer cannot keep cattle sufficient to provide dung and other manures for his arable, and occasionally for his pasture land. This practice of folding must therefore tend to increase the growth of every species of grain.

House

House Lambs.—Few counties in England produce so many house lambs as Surry: thousands are annually brought to the London markets, and it forms one of the most injenious, if not the most profitable branch of some of our Surry farms. That very able agriculturalist, Mr. Ducket of Esher, ranks foremost in his management of this very delicate and useful article: he rears upon an average 500 a year; and for this purpose the Dorsetshire ewes are the only sort he keeps, as he considers them the best nurses, and producing lambs all the year. The growth of green food, such as rye, clover, tares, and turnips, are absolutely necessary in this important branch of farming, and perhaps are cultivated in a greater extent upon the small farms in this part of the county than in any other. Further particulars relative to Mr. Ducket's agricultural management we could not learn, as he had previously communicated the same to Mr. Arthur Young.

Cows.---In the vicinity of the metropolis there are about 700 cows kept for the supply of the villages, and the parts adjacent to London and Westminster, with milk. The cows are principally from North Allerton in Yorkshire, and from the county of Durham, and are brought to Northampton, where the jobbers and the keepers of these cows attend to purchase what they want. They are of a large size, handsomely made, and distinguished by small heads and short horns. The average cost may be said to be about twelve guineas, but they are every year getting dearer. They yield one day with the other, while in milk, one gallon, which, of their measure, is understood to be eight quarts; and this they sell to the milk people who carry it about, at fourteen pence per gallon. These people retail it out to the house-keepers at threepence per quart; and supposing that they sold it at that price, pure and not diluted with water, they would realize upwards of seventy-five per cent. But when it is understood, that a large portion of water and other ingredients are mixed with this

this milk, their profit must be immense; and the quality of the milk, at the best perhaps not very rich, proportionally bad. In the winter they are fed upon certain proportions of turnips, grains, and hay, (the grains from the distilleries are much better than those from the breweries); and in the summer, upon grass, tares, and rye. The turnips are fetched from all parts within the distance of fourteen miles, and the price may be averaged at about seven guineas per acre, according to the situation, distance, and crop; but if the latter is good, and does not exceed five or six miles, the price is eight guineas per acre; the sort is generally what is understood by the Hertfordshire white round and the Norfolk turnip. Rye for the summer food, yields about six pounds per acre; and tares, which are a medicine as well as fine food for them, costs seven pounds an acre. Potatoes are beginning to be cultivated upon a large scale, the stalks and leaves of which, while young and tender, affords good nutriment, and if gathered young, is said not to injure the growth of the root; of that, however, we want better proof. But the great end for cultivating them, is to supply the means of food after the turnips or cabbages are all off; and before the grass, rye, and tares are come in. This interval they are obliged to fill up by additional portions of hay, which at that season is generally at an enormous price. It does not appear upon a very general inquiry, that cows of any other description, or from any other county, produce so regular a flow of milk, under that course of treatment which they are obliged to give them; and consequently none are so well adapted to their purpose. As we do not find that there are any particular dairies in this county, it would be needless to attempt the description of the sorts of cows which are to be met with throughout the district, in the possession of the several farmers, as they are as various as their places of abode.

Calves.---No inconsiderable number of calves are suckled about Esher, as well as other parts of the county; but nothing new in the management has transpired.

Oxen.---This article of stock would not have made any figure in this Report, but for the spirited efforts of a few gentlemen. We shall therefore beg leave to introduce to the notice of the Board, a mode of fattening them, which has lately been adopted by Messrs. Hodgson and Co. malt distillers at Battersea, and by William Adam, Esq. of Mount Nod Farm, near Streatham, under the direction of Messrs. Nunn.

A few years ago, the former of these gentlemen purchased the horizontal mill, which some years since was erected near Battersea Bridge, for the purpose of grinding colours, but which they have converted into a corn mill, by altering the machinery, and have thereby rendered it the most complete thing of the kind in the kingdom. Nearly adjoining to this mill they have erected a very large and extensive distillery, and, almost circumscribing their premises, a range of houses have been built, of about six hundred feet in length, by thirty-two feet in width, for the oxen: these houses are divided longitudinally into separate stalls for each beast, by a rail or bar placed between them, three feet six inches asunder.—The oxen are placed in two rows, standing, with their heads opposite each other; and in the middle between the two rows is a passage six feet wide, the whole length, and one at each end, of the same width, where the cattle go in and out: latterally they have introduced an open wooden trellis, or grating, made strong, which is placed on blocks five or six inches thick, raising the grating above the pavement. The intention of this trellis is to keep the animals from the pavement, that they may not only lie dry, but also that they may with greater facility be kept clean; which, as often as they want to do, the soil is drawn out from under the grating, by means of a broad hoe, and likewise that their feet, naturally tender, may be kept from being bruised by the hard-

hardness of the pavement, for whenever that happens, they do not thrive. For every hundred of oxen two men are kept, whose business it is to feed and to clean them. The allowance is one bushel of grains put into a triangular trough filled with wash, to each, and one truss of hay per diem to every fifteen; to which is added, sometimes, some of the meal dust that flies from the malt in grinding. Their time of buying them in is about September, at which period they are generally brought to Kingston, and other west country fairs. The number which they there buy is from four to five hundred, and for these they pay an average price of about eight pounds per head. The sort they prefer most, are the largest of the Welsh and Herefordshire breed, which arrive when fattened to a middle size, The Scotch they think too small, and the Yorkshire too large. After keeping them from fourteen to sixteen months, they are in general sufficiently fattened for sale, and are sold to the carcass-butchers, at an average of sixteen pounds per head. Mr. Hodgson's communications, as well in this as in other points, were at once liberal, friendly, and gentlemanly.

The buildings which Mr. Adam has erected for the same purpose, are upon a very different construction, and exhibit a great undertaking well designed. There is an engine fixed up, which, from the multitude of its operations, and the simplicity of its mechanical powers, is beyond comprehension. We shall therefore only relate what it effects. It raises water from out of a well one hundred and seventy feet deep, into a large reservoir, which water is afterwards conveyed along pipes through the whole of the buildings, by the side of the troughs; and by means of brass cocks the water is let into any or all of them in a few minutes. The same machine cuts chaff, splits pease and beans, threshes wheat and other grain, which it cleans also; it likewise grinds linseed, by means of two mill-stones of very large dimensions, which, by a very curious contrivance, are fixed on a frame, and by their revolutions grind the seed which is used

for

for feeding the cattle instead of oil cake. This engine is worked by four horses. Adjoining to this machine is a range of buildings, conveniently constructed, and sufficiently capacious to feed six hundred bullocks, and which at this time is nearly full; they are of different sizes, and from different parts of the kingdom; are regularly fed with one pound of linseed, one bushel of grains, one bushel of chaff, and a quantity of wash from the distilleries, all mixed together, and one truss of hay between eight or ten. This is their daily food all the year round. The price, when bought in, or sold out, we could not learn; but certain it is, that according to the species of the beasts, there are some of the finest and fattest we ever saw. They also feed hogs; but not having yet made any great preparation for them, their number is but few.

On this farm, this gentleman has introduced, upon a pretty large scale, the drill husbandry, having at present drilled about one hundred acres of wheat. This, together with draining a strong and wet clayey ground, will open a considerable field for improvement: the whole is conducted with great judgment, without considering expence. Possessing therefore so much merit, it is to be hoped he will be amply repaid.

Hogs.—In addition to the stock of the county before described, we must not lose sight of a source of wealth of which the Board, perhaps, has little or no conception: it is in the article of hogs, which, considered as a point of national economy, is of very great importance to this country. Formerly, that refuse which now affords some part of the food for thousands, and they in their turn giving food to thousands more, was let off into the Thames, or into other places proper to receive it. But as the exigencies of the state required, from time to time, supplies of money, the then government found it expedient to draw a revenue from that

spirit, which the distillers with much ingenuity extract from malt, &c. and this duty has at various times been advanced to its present height. The profit which the distillers thought themselves in fairness and equity to be entitled to, being thus reduced, an expedient was hit upon for converting that refuse or wash into a food for fattening hogs. The number which in this county alone are annually fattened, shews to what an extent it is carried, and, as a branch of commerce, is of considerable value: it is, besides, of material benefit to those counties from whence they draw their supplies; and inasmuch as it makes a part of agricultural economy, deserves every encouragement that can be given to it. There are also great numbers fed in the starch yards, which we shall distinguish from those of the distilleries; but the comparative difference in quality we cannot ascertain with sufficient accuracy to ground our report upon. We shall therefore only say, that both have no small degree of merit for conducing so much to the supply of the country, as well as to the welfare of individuals.

At Messrs. Johnson's distillery, at Vauxhall, no fewer than three thousand hogs are annually fattened; they are bought in at fifteen months old, or thereabouts, at an average price of fifty-five shillings; are kept with all imaginable care and cleanliness, in one uniform progressive state of increase, for the space of eighteen to twenty-six weeks, when the major part of them are sufficiently fattened for sale. As they are of different breeds, and the produce of different counties, so their progressive qualities are always strikingly characteristic. It may be then asked, "if they differ so much in quality and size, why not fatten those sorts only that are found to be the best?" The answer is, because a sufficient number cannot be obtained of that age; and therefore recourse must be had to hogs of a younger age, as well as to those of an inferior quality. When fattened, they are sold, and realize the prices marked against each in the table,

upon an average. It must be observed, that no pains are spared to keep them clean and sweet, which the superior construction of their very extensive premises enables them to do. One-half of their time they are brought forward with a certain quantity of wash and grains, and the latter part with a portion of meal dust.

TABLE OF HOGS AT MESSRS. JOHNSON'S DISTILLERY.

From whence brought.	Age bought in.	Value when bought.	Weeks kept.	Weight when fattened.	Value when sold.
Shropshire, Herefordsh. Gloucestersh. and Berksh.	Fifteen months old,	S. 55	18 to 26	Stone. 32 to 35	£. S. £. S. 4 0 to 5 0
Norfolk, Suffolk,	younger,	42	do.	21 to 24	2 15 to 3 3
Essex, but not of the breed of that county,	Fifteen months old,	60	do.	34 to 36	4 15 to 5 10
Yorkshire,	do.	46	do.	21 to 28	3 0 to 3 10

It is necessary to be here remarked, that the Norfolk and Suffolk are the soonest fattened, but they do not come to so valuable a shape to make bacon; the Yorkshire are upon the whole the handsomest make, and the real Essex breed of the least value.

At Messrs. Benwell's distillery, at Battersea, are annually fattened from three to four thousand hogs. The same progressive treatment and the same consequent success mark the practice of this house; and upon inquiring whether any improvement could be made by a mixture of the breed, it was with satisfaction that we learnt, that Mr. Benwell's predecessor, Mr. Bell, had some years ago sent a great many boars and sows from Berkshire into Yorkshire, which had succeeded so well, as greatly to have improved the breed, and for which that gentleman deservedly received the thanks of many of the principal farmers of that county.

At Messrs. Bush's distillery, at Wandsworth, there are about two thousand annually fattened. They give the pre-

ference to the Berkshire breed; and they get some excellent stores of this breed from the neighbourhood of Beverley, in Yorkshire, which corresponds with the accounts given by Mr. Benwell, as well as by Messrs. Johnsons, of the superiority of their shape. It is the opinion of these gentlemen, that if the Shropshire stores came to hand in better condition and more age, they would be certain of coming to a sale; consequently there must be a certain degree of good quality attached to them: they are near six months in getting them from twenty-five to thirty stone; and from the present high price of corn, this trade is by no means considered profitable to them.

At Mr. Stonard's starch manufactory, upon an average of four years, they have fed, from the refuse of the manufacture, two thousand and seven hundred per annum; but as their food is of a cold and poor nature, and in no way equal to the distiller's wash and grains, they are obliged to give them a very considerable quantity of beans and pease, amounting to between nine hundred to one thousand quarters communibus annis. They have generally from seven to eight hundred at a time in fattening.

At Messrs. Randall and Suter's starch manufactory are fattened, after the same manner, between six and seven hundred annually; they buy them in at one year and a half old, and in six months they are fit for sale, when they fetch from four to five pounds each. The sorts which are made choice of by these gentlemen, are in every respect the same as those which the distillers fatten. The greatest part of these stores are brought to Finchley, in Middlesex, where they are sorted and put into sizes by the salesmen, before they are sent to the respective feeders: these, as we said before, are principally Yorkshire, Shropshire, Berkshire, Lincolnshire, and Leicestershire. Those which come from Norfolk, Suffolk, and Essex, are brought from just after the harvest, to the month of October, to Romford market.

The custom about London differs from that in the country as to the weight of the hogs: in the former it is the net weight of the carcass, not including the head, feet, or flea, as is done in the latter. When malt is at a moderate price, they are supposed to pay to the distillers about two shillings per week per head. It is somewhat singular, that with so much knowledge as these gentlemen must have acquired respecting these animals, no method has yet been discovered for ascertaining their ages, and therefore they are obliged to buy them in at a venture.

From what has been said upon this subject, it will appear, that the number of hogs fed in the manner described, in this county, upon an average of four years, is upwards of eleven thousand seven hundred, valued at £46,215.

It remains now for us to return our particular thanks to those gentlemen before named, for the very handsome manner in which they furnished us with the materials to draw out this report: our especial obligations are due to Mr. Benwell, who, besides aiding us in the subject more immediately within his department, took particular pains to procure for us the number of acres of common field land within his parish, as well as the nature of the tenure, &c.

WHETHER ANY OF THE LAND IS WATERED.

IT does not appear, that watering of meadows is any where practised in this county, of sufficient extent to deserve particular notice; and indeed such is the nature of the county, that very few parts of it are capable of so desirable a practice at all; that which is watered does not appear to be done according to any new system, but simply conformable to the ideas of the possessor.

IF THE LAND IS EMPLOYED IN HUSBANDRY.

IN the environs of London the principal crops in use are rye, tares, clover, and turnips: these are chiefly consumed as green meat, and bear very heavy prices. In the more inland part, wheat, barley, oats, beans, pease, lucerne, rye-grass, and lately upon the Downs, very large quantities of saint foine, which is found to answer very well. In the neighbourhood of Mitcham, several acres are planted with various kinds of physical herbs, such as peppermint, spearmint, baulm, lavender, hysop, penny-royal, sage, horehound and tansey, together with a great variety of herbaceous plants, which are brought to the London markets, and are readily bought up, and wherever the land suits them, produce very large profits. Potatoes, and in the deep sandy loams near Chertsey and Woking, very considerable portions of carrots and parsneps are grown for the London markets, as well as for the seeds; but not, that we can find, for the feeding of cattle.

WHAT IS THE ROTATION OF CROPS.

ACCORDING to the common field husbandry of this county, and we believe it is nearly similar in other counties, at least it is so of those through which we have had occasion to travel, and thereby to notice the practice, that very little or no variation at all could take place; and therefore wheat, barley, and oats, have been the uniform routine, and their chief aim has been to get the wheat crop round, be the ground rich or poor, shallow or deep. The custom of each manor in the arable lands, for the most part, was to lay them in three common fields; and in so doing, they were enabled to pursue a course of wheat, barley, or oats; and the third remained in fallow. By this practice every idea of turnips, clover, and other artificial grasses, was out of the question. But as mankind became more and more enlightened, finding the bad effects

fects of this sort of husbandry, and being precluded the advantage of winter crops; seeing also the absurdity of fallowing, they wisely made an agreement among themselves, (wherever they could possibly effect it) and changed somewhat of the mode, by the introduction of the artificial grasses. Having, however, no opportunity of cross ploughing, (which every intelligent farmer deems so necesary) by reason of the narrowness of the slips into which common field land is generally divided, they are prevented even in the summer from making as much produce as they otherwise would do. It will not, we presume, admit of a doubt, that if turnips, clover, and other artificial grasses can be introduced in a due course of husbandy, but especially pease, beans, or potatoes, that they are the best preparatives for wheat, that can be desired; for, as they are either sown or planted at certain considerable distances from each other, row from row, it enables the good farmer to hoe his ground as often as he finds it necessary to the destruction of the weeds, the loosening and pulverizing the soil, and thereby preparing it in the most effectual way for any succeding crop.

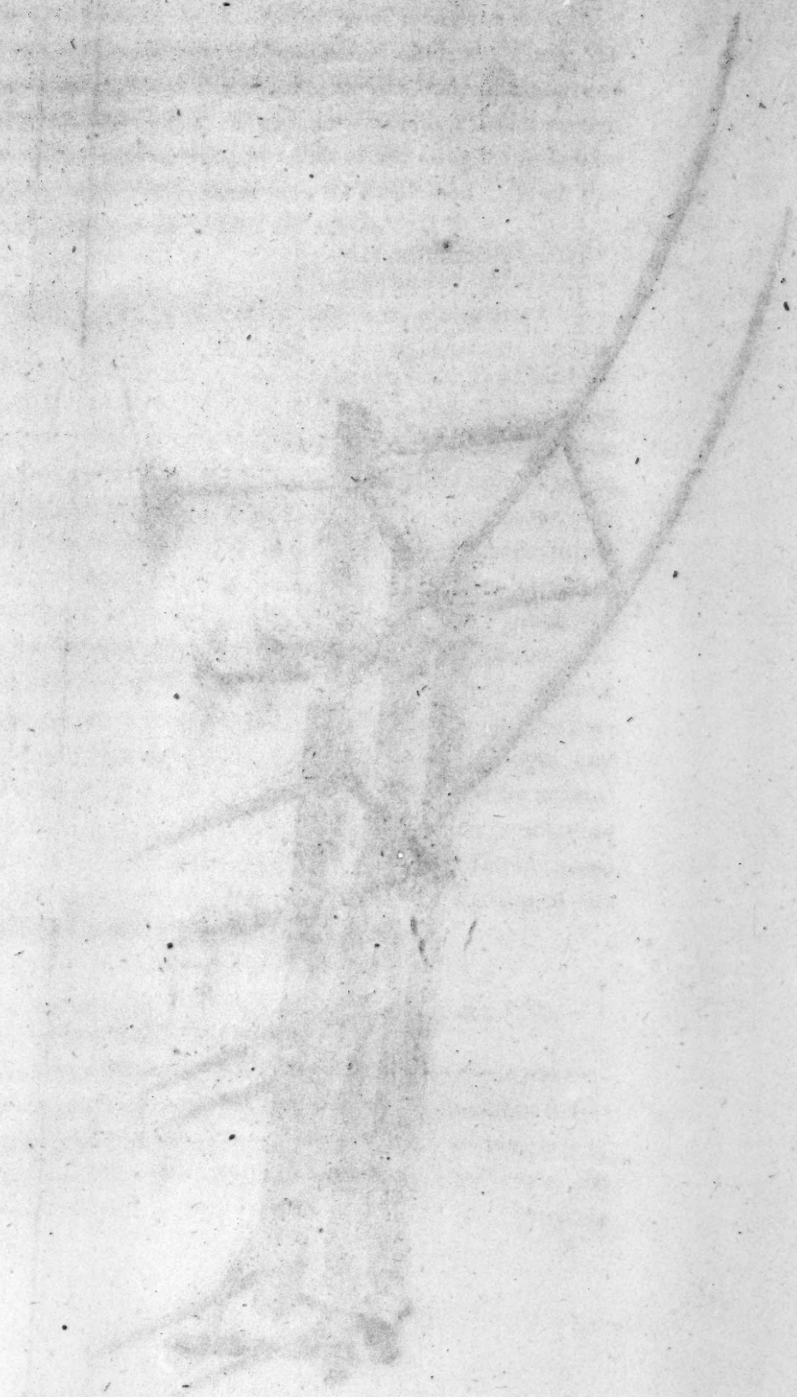
FALLOWING CONSIDERED.

WHENEVER it is in the power of the farmer to use his discretion in a due succession and change of his crops, we mean only such as is consistent with good husbandry, we are fully of opinion, that fallowing is altogether, and absolutely unnecessary, and is just so much, as that ground ought to have produced, lost to the community; and for the strongest and best of all possible reasons, "that lay the ground up in whatever way you please, cleanse it in the most effectual manner that you can, nature will not suffer it to remain inactive, and therefore it generates all kinds of weeds, which two or three years of successive good husbandry are barely sufficient to eradicate;

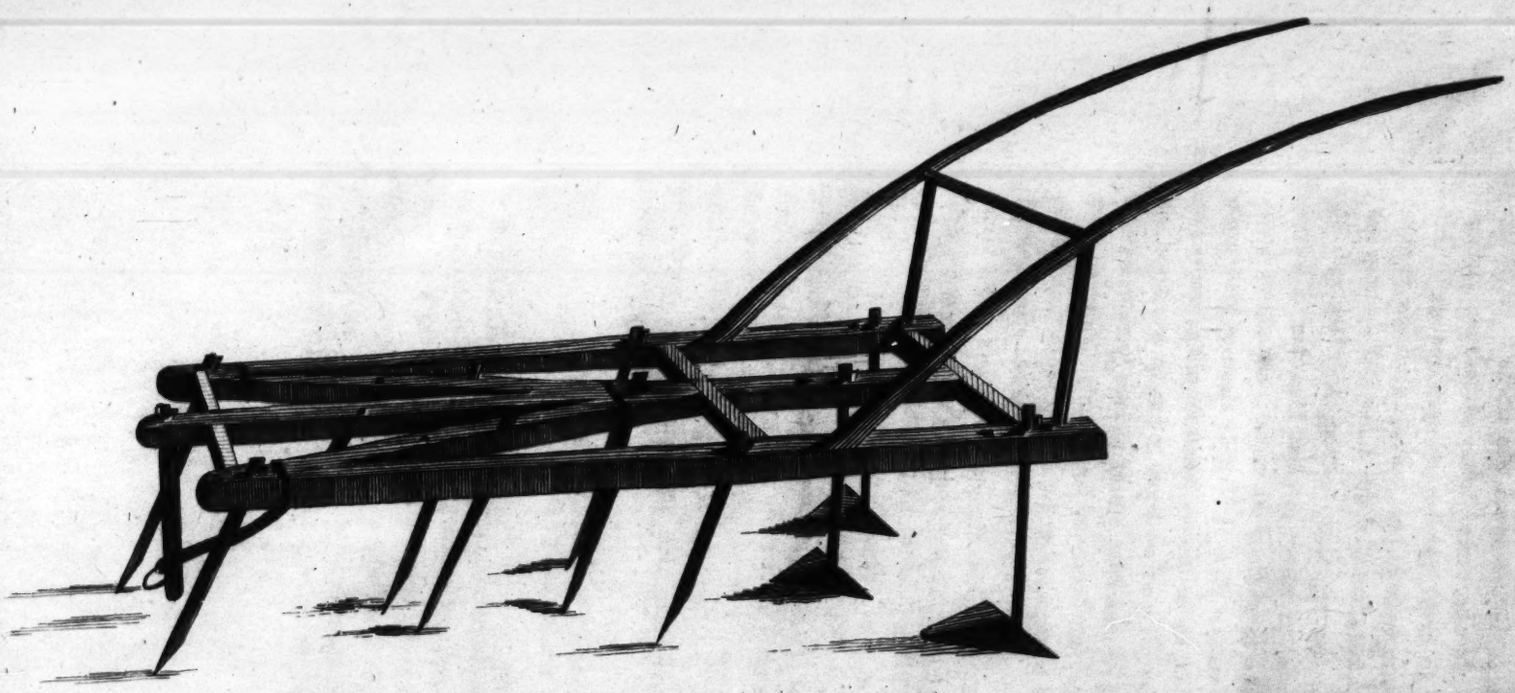
eradicate. But lest any doubt should be entertained of this matter, and that the proof before offered should not be considered enough in point, we beg leave to bring to view the state of all the nurseries, and kitchen garden grounds, near the metropolis; and it will be found, that in no one instance do they suffer any part of their grounds to remain uncultivated or uncropt; and yet, "can any crops be in general more productive, either in quantity or quality, than what those very grounds yield?" It will, we are sure, be difficult to answer to the contrary, much less to prove it. And here we beg leave to say a word or two further, that however necessary dung may be to the gardener, to give that stamina to the ground, which such repeated croppings may require, yet no such dressing is at all necesssary for the nursery. On the contrary, dung is found to be in some cases injurious to forest trees, and in all superfluous; and the only practice which forty years experience enables us to say is necessary, is to fresh trench the ground as soon as the preceding crop is off; and plant it with some other sort of tree, which, from being different in nature and quality, will thrive as well as if the ground was but just broke up; and it is nothing more than the frequent removals, and careful prunings, that give to the trees raised in the nurseries, that decisive superiority which they are distinguished for, and not by being forced with dung, as has for a long time been erroneously supposed.

WHAT MANURES ARE MADE USE OF.

ON the strong clays and loams in the south-east part of the county, lime is the prevailing manure, and in quantities from twenty-four to thirty quarters per acre; in the other parts, where lime is not to be had, one practice is to bring out the fresh dung from the stable, and lay it in heaps by the sides of roads upon narrow slips of waste, there to rot, when it is turned



HORSE HOE



Neale Sculp.t 352 Strand

turned over a certain portion of the soil that is found under; the dung is mixed with it, together with whatever soil can be collected from ponds, or the bottoms of ditches. These, by repeated turnings and expositions, make a body of manure of very considerable value. This is provincially called a mixen. Where the situation will not admit of the dung being laid on the waste, the next recourse is to the head land. With this manure they dress their land for wheat.

WHAT ARE THE USUAL SORTS OF PLOUGHS?

HAVING minutely examined the implements of husbandry used in this county, nothing striking appears. The ploughs in use at this time, in most districts, are nearly similar to those that were used by their grandfathers, and differ only as whim or custom has more or less prevailed. The more customary ones, however, (where the new husbandry has been introduced, and which we beg leave here strongly to inculcate into the minds of every intelligent farmer, as by much the best mode of delivering the grain, is Cook's drill machine, and the best hoe is Macdougale's; these are by far the best machines in present use) are the Kentish turnwrist, the Rotherham and Ducket's skim plough, the swing plough, and wheel plough. A horse hoe, which we have used for several years in hoeing fields of pease, beans, and other articles intended for seed, and which we have uniformly found to answer, we have given a plate of, for the satisfaction of the Board of Agriculture.

WHETHER OXEN OR HORSES ARE USED?

THE few oxen that are to be met with in agricultural employments, are scarce deserving notice, and therefore it follows, that horses are the favourite, the quality of which may vie with those of any other county; and either evince the

property or the pride of the proprietors. It is, however, much to be lamented, since oxen will unquestionably, in the field, do as much work as horses, are by proper training full as tractable, cost in the first instance less, consume less provender, and are of considerable value when they are got old and incapable of doing so much work, that they are so much out of use.

WHAT IS THE USUAL SEED-TIME AND HARVEST?

TO enter into the particular periods of the seed-time and harvest in this county, would be to give the description of each particular district; it is sufficient for our purpose to say, that in that part of the county where the soils are stiff and difficult to work, every intelligent farmer will necessarily take every advantage of the weather, and the state of his soil, to sow his grain: in like manner, where the land is more pliable and light, they seldom lose sight of the first rains in September and October, to sow the wheat. By so doing, there is sufficient warmth in the ground to make the seed vegetate speedily, and thereby attain that strength so necessary to resist any check which a severe winter may produce. It will be needless to say, that there are circumstances and situations in which wheat is sown as late as the middle of December. But surely these must have arisen from some unforeseen cause, and not the effect of choice; for we have never yet met with any thing like a specious argument for such a practice; and it must be evident to the meanest capacity, that to sow grain at so late a season as this, (which, if the land is stiff, must necessarily be much chilled, besides the almost impossibility of sufficiently covering the seed) must subject it when just sprung up, and in all the tenderness of infancy, to the wind's cutting blasts; to say nothing of the great number of plants which the frosts will assuredly from time to time throw out of the ground. This therefore makes a part of bad husbandry.

husbandry. The same argument, somewhat differently applied, will hold good as to the barley and oat season. From the first week in March, to the second week in April, is, as near as can be collected, the time which these grains are usually sown. It would be folly in us to lay down any general plan to regulate these several sowings, because he must be a very bad farmer indeed that will lose sight of the fittest season for depositing his seed; and that period is most proper which is neither so early as to be affected by frost, nor so late as to be liable to suffer by a dry season. The exact quantity of seed of each grain to be sown on an acre, may very nicely be ascertained by that very useful machine, the Rev. Mr. Cook's drill. But as this proves nothing in answer to the question, we beg leave to say, that in the broad-cast husbandry, the quantity sown per acre, is about an average of two and a half bushels of wheat, varying from little better than two and a half to four and a half; of barley, three bushels; oats, five bushels, computed by the Winchester measure; for it certainly is not the charging of the land with a large quantity of seed that makes it the most productive, but (next to the proper preparation of the soil) the exact distribution of just such a portion as enables each plant to derive its due quantum of nourishment from sun, air, and soil. Surry is by no means a barley county, yet in particular districts, what it does grow, is good, and not unfrequently fine. The harvest differs but little with the other neighbouring counties, unless indeed we except the environs of London, where it is rather earlier, and which the great number of people to be found at that season, enables them to get in with expedition. And this is the period of the year when the want of hands is a very serious evil, and which, we are convinced, inclosures would tend greatly to remove. The average produce per acre may be thus computed: wheat, twenty-three bushels; barley, thirty bushels; and oats, thirty-six bushels;

although in some parts, eighty bushels of oats have actually been produced from several acres.

WHETHER LAND IS INCLOSED?

IN reply to this question, we have only to say, that the county is composed of a proportion of inclosed, as well as open fields, the result of which is sufficiently explained in the answer to the rotation of crops. But the advantages that have been found from inclosing land, must be looked for in some other county, for in no one circumstance is the county of Surry so much behind, as in that under consideration; and therefore the increase of rent, quantity or quality of produce, improvement of stock, &c. must remain to be proved. But we have in another place shewn, that the farmers invariably say, that if they give at this time twelve shillings per acre for their common field land, they would for the same inclosed, with great pleasure, give eighteen shillings, and so in the like proportion of rent as they now pay.

The size, and nature of the inclosures, is answered by the preceding.

The increase or decrease of population by inclosures cannot be ascertained in this county; but it is a question which many parts of England can prove, where inclosures to a considerable extent have taken place; and we beg leave to quote Worcestershire in support of our opinion, that the less open the country, whether it may have consisted in downs, wastes, or common field land, the less of poverty and idleness is to be seen among the generality of their inhabitants, and therefore it may be inferred, that inclosures tend greatly to population.

WHETHER THERE ARE ANY COMMON FIELDS?

IN answer to this question it will be necessary to refer the honourable Board to the several quantities of land now in common

common field in the various divisions of this county; and as we proceed to mark the advantages that situation, soil, or any other circumstance may produce, and lastly to draw such conclusions as a review of the whole may suggest.

The quantity of common field land, from Croydon, Beddington, and Wallington, to Carshalton, is estimated at 1500 acres, the major part of which, but especially the lower land, is good, being a kindly loam upon gravel, or upon chalk; and taken in the aggregate, produces very good wheat, oats, barley, rye, clover, and saint foine. Notwithstanding, however, that the greatest part of this land is in the hands of a few proprietors, principally opulent gentlemen, who would most readily join in a fair and equal division, yet from the nature of the tenure of those lands, the intermixture of their property, and some other trifling obstacles, they have hitherto been prevented from effecting so desirable an object. In a field perhaps of 200 acres it is no uncommon thing to find ten proprietors, holding twenty shares or lots, many of which are at a distance from each other, and still farther from the principal part of the farm. The lands above described average about fourteen shillings per acre, although there are some that fetch 1l. 5s. and a few particular situations that realize as high as three pounds per acre; but that is no criterion, being close to some town or village. The whole of these lands in a state of inclosure would, from their proximity to Croydon, Carshalton, &c. let at 1l. 5s. to 1l. 10s. per acre.

From Carshalton, we proceed to Sutton and Cheam, where the soil for the most part is good, although shallow, and the substratum chalk. The quantum of land in this neighbourhood, in a state of common field, is said to amount to 3000 acres. Its immediate contiguity to several lime kilns, enables the proprietors of those lands to dress them at an easy rate, and therefore they are perhaps as productive as lands under such tenures can be. Present rent ten shillings per acre;

acre; but inclosed land of the same quality, and in the same neighbourhood, brings from 1l. 10s. to 2l. per acre.

In the confines of Ewel, there are between 6 and 700 acres. The high lands near the common are a light shallow loam upon chalk; the low lands are composed of the same sort of soil, but of a good depth, producing good and fair crops; which the wisdom and good sense of the proprietors have enabled them to effect by mutual exchanges of lands, laying small or narrow slips together, which before were very much scattered and intermixed. But notwithstanding that by this means one great end is obtained, still the want of inclosures subjects them to all the inconveniences of one system of cropping, does not exempt them from suffering by the bad husbandry of their neighbours, and effectually prevents them from raising such a portion of green meat, as turnips, cabbages, clover, and saint foine, (the latter of which the land in question is well calculated to grow) which the size of their farms would enable them always to grow for the support of sheep stock in the winter. Under these disadvantages, it is not to be expected, that the land should bear a high price, and therefore it only lets from eight to fifteen shillings per acre; but for which, if inclosed, the present tenants would give from 1l. to 1l. 10s. per acre. Epsom common fields contain about 800 acres. Nearly one half of the low lands are a tolerable deep sandy loam; the other part, loam upon chalk. Present rent thirteen shillings per acre. The former land, as being so much deeper, is peculiarly adapted to the growth of saint foine, or as it is sometimes spelt, sainfoin, and by Linnæus called *hedysarum onobrychis*. If this land was inclosed, the saint foine might be cultivated to very great profit. The best way is to drill it thin at not less distance than two feet, row from row; and the seed deposited not deeper than half an inch in strong land, and from that to one inch, according to the strength of the soil, in which the farmer must use his discretion. By being sown in drills, it will enable him

to use Mr. Macdougale's hoe, in order to the due cleansing of the ground by the destruction of the weeds, as well as to the great encouragement of the plants, by stirring, loosening, and pulverizing the ground. It must be understood also, that it is altogether improper to sow any other grain or seed with it. Sheep eat it voraciously; oxen and cows fatten very fast upon it, in a certain state of its growth, just before it comes into blossom; and it makes excellent hay for working horses all the year round. It is affirmed also by those farmers who have cultivated it upon a large scale, that two bushels of the seed of this plant will afford more nourishment to horses, than three bushels of oats; but with what truth, we cannot from our own knowledge speak: it certainly, however, merits the trial, in order that we may know that there is to be found so good a substitute for oats. We have been led into this detail here, by the fitness of the soil under immediate description for the growth of this valuable plant; under a state of inclosure, the whole of this common field land would average twenty shillings per acre. Leatherhead common fields contain 2000 acres of good loamy land; and assimilating so nearly to the preceding, it is unnecessary to add any thing further as an argument to induce the inclosing of them.

Ashted common fields consist of about 700 acres of similar soil: its proximity to the Downs would in a state of inclosure render it highly valuable: its present rental averages about nine shillings per acre.

Fetcham common fields are about 150 acres of good loam; present rent seven shillings and sixpence per acre.

Bookham common fields, similar soil, and about the same rent, and contain 450 acres.

East and West Clandon common fields are nearly 300 acres of similar soil and rent. These three divisions would, if inclosed, let at twelve to fifteen shillings per acre.

Meroe and Horsehil common fields are composed of 510 acres of light loamy soil, part gravelly and part stoney; present average rent near seven shillings per acre.

Egham

Egham common fields contain about 300 acres of rich light loam, well adapted to the growth of corn: its ready communication to the Thames, its contiguity to Egham, and as we before observed, the richness of its soil, all conspire to make inclosures here very desirable. The right of commonage is unlimited; and under those restrictions, it nevertheless lets from 1l. to 1l. 5s. per acre, but would let directly, if inclosed, for 1l. 10s. to 2s. 10s. per acre.

Hythefields contain about 230 acres of good loamy land upon gravel: they are in small parcels, the property of about thirteen persons, who have an unlimited right of common. The present rent is sixteen to twenty shillings per acre, but would fetch from thirty to fifty shillings.

Thorp common fields contain about 350 acres of good loamy soil. Present rent is twenty shillings per acre; would let for thirty to forty shillings per acre.

Mortlake, Putney, Wandsworth, and Battersea, are said to contain about 1340 acres of light loamy soil. Present rent 1l. 5s. per acre, which, if inclosed, would find a rental of 1l. 10s. to 2l. 5s. per acre. In examining Battersea fields, perhaps no part of the county (and we may almost include the kingdom too) exhibits in stronger colours the absolute necessity of inclosures. The lands for the most part lay in narrow slips, which is the general custom, are ploughed in one uniform way, and are nearly sown with one uniform round of grain, without intermission, and consequently without fallowing. This its proximity to the metropolis enables the tenants to do, by the great ease with which they get dung and manure; but notwithstanding the facility with which they can always work this soil, yet it is so invariably foul, that in this respect Battersea fields are become almost proverbial. It is in vain that one man is at great pains and expence to cleanse and purify his lands, if his next neighbour will not do so too. The lightness of the soil, and the quantity of dung which is continually bestowed upon these fields, at the same

time that it makes them productive in grain, tends also to encourage the growth of couch, and other noxious weeds. Were they inclosed, they would, in all probability, be appropriated to horticultural purposes, for which the land and situation are so peculiarly adapted: in that case it would fetch from three to four pounds per acre, notwithstanding the tythe has in this parish been a continued source of vexatious disputes between the clergyman, or tythe holder, and the parishioners.

Runneymead contains one hundred and sixty acres of good soil, and at present lets for twenty shillings per acre, tythe free. It is the property of ten persons, and in small parcels. After the 12th of August it is common to all the parish, who turn on an indefinite number of cattle, until March, when it is shut up again; but being subject to be flooded in the winter, it becomes poached by the number of cattle that are on at that time, to the destruction of the herbage, and consequent loss to the proprietors. This would be remedied by an inclosure, and would be worth from forty to sixty shillings per acre.

Yard Mead, and Long Mead, contain about one hundred acres of similar soil, and under similar regulations, and of nearly the same value.

Weybridge and Walton meadows lie together, and contain about three hundred and fifty acres of loam on gravel; they are subject to be overflowed by the Thames, which bounds them on the north. Present value about 1l. 5s. per acre.

Send Common Broad Meadow contains three hundred and sixty-five acres of a deep rich soil, the property of about fifty people. The present rental is about 1l. 10s. per acre. As soon as the hay is carried, the meadow is shut up until the 18th of September, on which day the gates are opened, not only for cattle belonging to the proprietors of the meadow, and the parishioners at large, but they are brought

from distant places, as well as from the neighbouring parishes. It is not known how this shameful custom was first introduced, but the fact is so; neither is it unfrequent to see diseased cattle mingling with the sound. All are however suffered to remain on until the March following. The ground by this weight of cattle becomes much poached, and consequently the herbage rendered of less value to the proprietors. It is bounded on one side by the old River Wey, and by the navigation River Wey on the other; and if inclosed would let from 2l. to 3l. and upwards. It is sometimes called Woking Broad Mead, being within the manor of Woking.

Scotches Common Meadow lies in Send parish, and contains fifty acres of similar soil and tenure as the preceding. There are only three proprietors.

Send Little Mead contains seventy acres of deep rich soil. This is a stinted mead. There are eleven proprietors, who alone have a right to turn their cattle on after the hay is off, and in the proportion of two horses or four cows per acre.

In bringing into one view the result of our inquiries into the quantum of acres now in common fields, the quality of soil in each district, and the question, Whether any division of them is proposed in this county? we beg leave to say, that the number of acres exceeds twelve thousand; but deducting what may be supposed to be lost by inclosing to the arable by hedges and ditches, which the surplus number of acres will amply make up for, we set the remainder down at twelve thousand acres, exclusive of about one thousand and ninety-five acres of meadow. These, however, may not appear so very considerable to those who are in the habit of seeing counties, where, perhaps, twice or thrice that number may be found; yet it will be quite sufficient for our purpose, if, by the statement in the preceding part of our

report, under the review of the commons and wastes, we have shewn, that the inclosing of the common fields will yield a return in the produce, over and above their present produce, equal to eleven thousand six hundred and twenty-five quarters of grain, and of the value of 15,693l. 15s. per annum. If our statement is correct, (and it certainly is not our intention either to deceive or mislead the honourable Board) and we have every reason to think that it is not far from being so, it makes no trifling argument in support of the propriety and good policy of inclosing; and if it is of so much value upon so small a scale as the county of Surry appears to be, of how much more consideration must it be, by inclosing those lands in such counties where there are so many more acres? It must not, however, be understood by inclosures in general, that the intention is the dividing a large tract of land into a great many divisions, of a few acres each—it is nothing more or less than observing the following plan: Where a man's entire farm, or the principal part of it, is in common field, which is not unfrequently the fact, in that case it will be proper that those lands which lie near his house should be divided into small fields, for the convenience of removing his cattle from the one into the other, as the seasons and occasions may require. These inclosures may contain six, eight, or ten acres in extent; but the more distant ones for corn, should not be less than sixteen to twenty acres each, according to the size of the farm. The smaller home inclosures will have a two-fold good effect; they will enable the tenant, as before observed, to remove his cattle as he finds it most convenient or prudent, either for pasture or for shelter; and they will in a very material degree act as a screen against the violence of the winds to his barns, sheds, and other buildings. In the first case, although by the smallness of the inclosures it may be said, that the grass produced near the hedges, and probably too under the drip of trees, may not be so sweet and

good as that which is produced in the more interior part of the field; yet, unquestionably, as the whole will grow so much earlier by reason of the warmth which shelter naturally produces, the farmer is considerably overpaid by being able to bring his stock so much earlier to depasture into particular fields, to, perhaps, the consequent less consumption of more valuable provender; and at all events it must enable him to bring them in a better state of forwardness to market. This is the grand art of agriculture, to be able by a uniform good system, to bring every commodity to the earliest market, at the least possible expence. In planting forest trees in hedge-rows, great care must be taken to apportion the number to the size of the inclosure; for it would be the height of absurdity to plant so many trees round them as to preclude both sun and air: a few trees would do that good which a greater number would render very injurious.

The quality of the soil comes next under consideration; and here it will be found, that the soil of the common fields is not only very congenial to the growth of white thorn, of which hedges principally consist, as well as every species of grain, but is likewise, in many places, adapted to the growth of timber, and in all cases capable of producing wood for fuel, for stakes, and for a great variety of agricultural purposes. The more, therefore, these fields are cultivated in a state of arable, by means of inclosures, the greater must be the strength to do it; and consequently, as more hands must be employed to afford that strength, it must tend to the increase of population.

Respecting the latter part of the query, Whether any division of the common fields is proposed? we have before noticed, in the several districts that we have gone through, the attempts that have been made to effect so desirable a plan, and have assigned the reasons that have been given to us, why those plans have not been put into execution; and we can with great truth assure the honourable Board, that

but

but one opinion prevails among farmers and proprietors, which is, that give them but the authority to inclose their common fields, as well as to make the proper exchanges, and they will give an increase of rent equal to what we have stated. It will not, we are persuaded, be imagined, that men of this description, who are said to be for the most part not very liberal in their dispositions, nor reckoned to be speculatively inclined, will offer to give an increase of rent exceeding one-third, unless positive conviction was previously brought home to their minds, by a comparative difference between the value and produce of their inclosed and common fields.

For more general and particular satisfaction, we beg leave to enumerate the several divisions of common fields under one view, to bring forward the present rental, which we shall average, and likewise the proffered increase of rent upon inclosing, which we shall average also. The result will then remain for the consideration of the honourable Board of Agriculture.

Common fields.	No. of acres.	Present rental.	Proffered rental.
1. Croydon,	1500	at £0 14 0	at £1 5 0
2. Cheam,	3000	at 0 10 0	at 1 15 0
3. Ewell,	650	at 0 11 0	at 1 5 0
4. Epsom,	800	at 0 13 0	at 1 0 0
5. Leatherhead,	2000	at 0 13 0	at 1 0 0
6. Aſhted,	700	at 0 9 0	at 1 0 0
7. Fetcham,	150	at 0 7 6	at 0 16 0
8. Bookham,	450	at 0 7 6	at 0 16 0
9. Clandon, Eaſt and Weſt,	300	at 0 7 6	at 0 13 6
10. Merve,	510	at 0 7 0	at 0 12 0
11. Egham,	300	at 1 2 0	at 2 0 0
12. Hythefield,	250	at 0 18 0	at 1 12 0
13. Thorpe,	350	at 1 0 0	at 1 15 0
14. Mortlake, — Putney, — Wandsworth, — Battersea,	1340	at 1 5 0	at 1 17 0
15. Sundry ſmall common fields not worth particularizing,	135	at 0 9 0	at 0 16 0
	12435	div. by 15=9 13 6	div. by 15=18 2 6
Average		£0 12 10¾	£1 4 1½

From

From the foregoing statement it appears, that the average of the present rental is twelve shillings and ten pence three farthings; and the proffered average rental is one pound four shillings and one penny half-penny and a fraction, to each.

WHAT IS THE PRICE OF LABOUR?

THE price of labour may be said to be nearly stationary for the last three or four years past, unless in the neighbourhood of the metropolis, the large market towns, or near the manufactories; and the average may be fairly estimated at eighteen-pence per day. It appears, however, now to be making rapid strides at advance, and if so, it may one day or other become of serious consequence. The idea uniformly held out as a reason for this advance, is the great increase in the price of provisions, as well as every other necessary of life, and that they are less able to bring up a family, even with this advance than formerly.* How far this may be true is for others to decide. The gardeners, whose profession so nearly assimilates to the husbandmen, and who certainly make some figure among the labouring class of this county, have raised their wages from 9s. to 10s. 6d. and from 10s. 6d. to 12s. per week. Such an increase, with the great advance upon the rental, the public must eventually pay. It is daily becoming the practice to do as much by the piece as possible, and where that can be done, it is the better plan, as being more satisfactory to each party; and therefore grass is mowed by the acre, according to the weight and goodness of

* Besides the too visible disparity there is in the price of labour which is paid to the bricklayer, his labourer, and mechanics in general, the labourers in agriculture are out in all seasons, and in all weathers; and although they are not worse of now in that respect than formerly, yet they have not the means of enforcing an increase of their wages which the mechanic has, although they are equally deserving encouragement.

of the crop, from four shillings to six shillings per acre, and with or without beer, as circumstances may occur: the women for making the hay are paid at the rate of one shilling per day, and beer; thatching, at one shilling to one shilling and three-pence per square of sixteen feet. In like manner, wheat, barley, and oats, are reaped and mowed: the former is reaped at about six shillings per acre, and the two latter mowed at two shillings and six-pence to four shillings per acre. The reaping is generally performed by the itinerant Irishmen, who at this season are found traversing the country in large bodies; and the carrying and stacking by their own people; ditching and banking, according, to the height of the bank, at six-pence to one shilling and two-pence per rod of sixteen feet and a half; trenching, or breaking up fresh ground, where the soil is not over gravelly or unusually stiff, is performed at ten-pence to one shilling per rod, of the depth of two spades, or twenty inches. The hours at which labour commences, are from day-light in the winter season, and ceases at dark; and from six to six in the summer, taking half an hour at breakfast, and one hour at dinner: but the better practice would be, both for man and horse, to begin at five, and work to seven in the evening, laying by the two hours in the heat of the day. The ploughmen usually go out at seven in the summer, and leave off at three; and in the winter, from eight to four.

Respecting a due attention to the draining of land, it does not appear that much of this is done in any part of the county; but from the accounts we have given of the different wastes, many of which require draining, there will be ample room for ingenuity to work upon.

Paring or burning is but little known, and still less practised in this district.

The state of the woods and wood lands are spoken of in another part of this survey.

THE IMPORTANCE OF LEASES DULY CONSIDERED.

THE leading principles, in the management of property in the county under consideration, are nearly similar to those of other counties. Leases for a term of years are the most prevalent; and the old custom of granting them for three lives, seems to verge fast upon extinction.

Tenancy at will has also prevailed of late years, and particularly in the south-east district; a tenure than which nothing can be more absurd, nor can it be too speedily abrogated: and surely those who are advocates for this mode of letting farms, must be blind to the interest of both landlord and tenant, as well as the community. It is well known to managers of landed property, that few tenants are to be found who are willing to engage in a farm where he must continually be at the mercy of the landlord, or his agent, compared to what there would be if a lease for years was granted; neither can it be supposed, if such men were found, that they would be characters either so opulent or so respectable; for, "What man will risque a sum of money in attempting any improvements, without a fair prospect of reaping a competent advantage?" Hence, therefore, it frequently occurs, that farms get into the hands of desperate men, whose only aim is to get money at all events, and consequently to remain on the farm but a few years, when it reverts to the landlord one-third reduced in value, the land being out of heart, as it is called, and the buildings and fences tumbling down. The farmer, by a tenure so insecure, cannot lay his land down to grass, however desirable it may be to him, or however well adapted the soil may be; because, no sooner does he begin to reap the fruits of his labour, by having brought the herbage to a good sward, than the landlord thinks he may raise his rent. But how different is the case where leases are granted for a certain-

and

and liberal period? The farmer will give a larger rent, because he is satisfied that whatever improvements he introduces, whether it be in grasses, grain, or different qualities of manure, he has the prospect of being rewarded. That leases are absolutely necessary as a compact between man and man, we believe that no one who thinks seriously on the subject will be hardy enough to deny: they give, by their penalties, to the landlord a security, that such a system of agriculture as may be best calculated for all the purposes of a well ordered farm shall be pursued; and they satisfy the tenant, that, at least for the term of that lease, he is labouring with a fair prospect of reimbursing himself those expences which he may have incurred, and the hope of a fair surplus to reward his ingenuity, his integrity, and his industry. At the same time it is to be presumed, that no landlord who has the good of his fellow creatures at all in view, will, out of all reason, exact such a rent, as to give the unhappy tenant only the option of consenting to it or quitting the farm; and which, rather than do, from having, perhaps, been born upon it, and attached to it by particular partialities, he will strain every nerve, and by almost starving himself and his family, to save a sufficiency to pay his rent when it becomes due. And yet that this is no uncommon case, no picture of imagination, every manager of estates, as well as those who, from situation, are led to be much among this most useful and neglected class of men, have continually but too convincing proofs of. Formerly it was a custom, that, when a tenant had conducted himself with care and assiduity on his farm, he was considered by the landlord as a person that deserved some notice; and at the expiration of his lease, a preference was given to him to continue on the farm upon such terms as evinced at once the liberality and good sense of the landlord, and the respect that he bore for the tenant. But now the case seems altered, and every improvement that is made on the farm is con-

sidered as an argument, that the tenant is getting money too fast, and consequently, that the farm must be greatly underlet; and all this for no other reason, than, because the tenant, quitting the common tract, has had spirit enough to improve the farm. That this is the practice in some of the divisions of this county, we are sorry to say, is but too true; but to particularize the several spots where this survey has in a very particular manner pointed it out to us, might be deemed invidious, and might not answer the end: it is sufficient that it is stated, and which we hope, will be the means of preventing it in future. How contrary to this is the system that other gentlemen adopt, of great respectability and property in this county, and particularly his Grace of Bedford, whose treatment of his tenants we have had frequent occasions to witness, and the eagerness with which farmers are desirous of holding farms under him, is a strong corroborating proof.

To ascertain the fair proportion of rent between landlord and tenant is no very easy task; it requires a person possessed with a thorough knowledge of soils, a perfect acquaintance with the qualities of stock, and with the best systems of agriculture in use, and a character that will not be warped from his duty either by the opinion of the landlord, or by the artful insinuations of the tenant. Such a man is best qualified to do justice to both; and well would it be indeed, if gentlemen setting aside their prejudices and conceits, would make that the rule of their conduct. There is a practice which we are glad to find gaining ground in this district, which is, that two years before the term expires, the landlord gives notice in writing, that at the conclusion of the lease he will expect a certain advance in the rent, according as the farm may bear it. There is something in this plan, so open and gentlemanly, and so contrary to that narrow policy which has too much prevailed, that it may be worth the attention of every landlord, as it is giving the tenant full and

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ample time to weigh the subject well, and to look about him; while he, on the other hand, will not be behind in generosity and gratitude to give his landlord such an answer as best suits his situation and circumstances. On the best regulated farms in the south and south-west part of the county, no leases are under fourteen years, nor above twenty-one; except where it happens to be with an idea of taking the same into the proprietor's hands, or in case of the minority of the owner.

Having said so much about leases, we next come to the covenants. The tenant agrees to keep up and maintain a certain specified dwelling in all manner of useful and necessary reparations, together with all barns, stables, cow-houses, and buildings of every description, that are or may hereafter be erected on the premises during the said lease; to keep in repair all gates and fences, landlord finding or allowing rough timber, but the better way would be for the landlord either to give so many new gates every year as he may think right, the tenant keeping them in repair, or else to make such an abatement in the rent as may be equal to the tenant's finding all manner of materials, without having the liberty of topping, lopping, grubbing up, or cutting down any timber, or timber-like trees on the farm, without the express consent of the landlord or his agent in writing, first had and obtained for that purpose. This will effectually secure his timber. The tenant is bound to cultivate his land according to good husbandry, and to consume all hay and straw upon the premises. Within the distance of ten miles from London, this covenant seems generally omitted, or else the markets would feel a considerable loss in the supply. But the tenant is obliged to bring a load of dung or manure back, to be spent on the farm, for every load of hay or straw which may be carried off the premises; and that all the dung and manure, of whatever nature soever, shall be disposed of upon the said farm only. All taxes and rates to be paid by the tenant, and lately, the land tax also; by which means, little or no trou-

ble attends the settling accounts, and the less of difficulty at this time is certainly the best: the one knows what he has to receive, and the other what he has to pay. Tenant agrees not to sow more than one fourth part of the arable land with wheat in the last year, and that such part of the straw of the offgoing crop, as the landlord shall direct, shall be at his disposal on the said farm. Tenant agrees not to let or suffer any person or persons whomsoever to occupy the whole, or any part of the said demised premises; other than him the said tenant, his executors or administrators, his or their wives, or children, without the special consent of the landlord, or his agent in writing. They severally agree, that every unprovided for dispute shall be settled by arbitration. We have only further to add, that as no good tenant will object to every proper restriction and security which a bad tenant makes indispensably necessary, so every prudent landlord should wisely discriminate between the two, as an incitement to others to follow good examples, to the certain and never failing advancement of agricultural pursuits.

WHAT IS THE STATE OF FARM HOUSES AND OFFICES?

PERHAPS in no part of the kingdom is the construction and situation of farm houses, and their respective buildings, less variable than in those of the county under consideration. They are for the most part very ancient, and therefore little in point of superior construction can be expected from them. If they still answer the purposes for which they were intended, it is all that can be required of them. It is not likely, however, if they do not answer all those purposes, that a tenant under a lease of twenty-one years, (which is giving it the longest latitude) would pull them down, and not one landlord in five, perhaps ever, sees half the farm houses and buildings upon his estates; so that if they do

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but hold together no matter how, the landlord is satisfied, and therefore nothing but accident or chance is likely to give the tenant a more comfortable dwelling. The formation of the yards is for the most part an oblong square, and depending upon situation as to the points. Supposing the house to be placed in the center; on the one side is a large barn, in some places with one floor, at others with two, for wheat, oats, or barley, with pig sties at one end; on the opposite side are stabling for as many horses as the farm may require, and cow houses and sheds for those cattle that are wintered in the yard with straw. A granary is placed in the yard, sometimes centrical. To some farm houses are attached wood houses, cart and waggon lodges, poultry houses, &c. At the back of the barn, or the stables, as is most convenient, is the rick yard, the major part of which are placed upon stone pillars, and which consist of wheat, barley, oats, or pease. It seems to be the general opinion, that all sorts of grain are better placed in ricks than put into the barn, for this reason, that the grain never comes out so oleaginous to the feel, as when exposed to the weather in ricks; and besides, it is more subject to get mouldy and musty in the barn, especially if it is placed in a low and damp situation. The barns and other buildings are generally covered with thatch, and the floors are of oak, but we have seen two lately made of elm, that have lain many years: they are in a high situation, and consequently dry, and have lasted much better than two of oak of the same dimensions, in similar situations. Some barns are built with brick and tiled, but are found not to be so good for the grain, which it keeps in a state of dampness. All barns that are made of wood, should have a brick foundation, which may be carried up three to four feet high all round, for the preservation of the wood work. If ponds of water can be procured in the yard it is a great convenience, as furnishing the cattle with drink, and the means of cleaning the horses from that dirt which a day's work imparts to

their heels, and which, if not removed, is the cause of grease and other impurities.

THE STATE OF THE ROADS CONSIDERED.

THE roads of this county as well public, or more generally speaking, turnpike as parochial, form no inconsiderable part in the economy of Surry. In the former, the immense sums of money that are annually raised and expended, are beyond what the most sanguine imagination can suppose. But whether the money so raised is properly applied, considering all the advantages that are attached to the situation, is not for us to determine: we shall speak only to facts, and the application must rest, where it should with great propriety, with the Board of Agriculture. In order to be sufficiently acquainted with a knowledge of the subject, a detail at some length becomes unavoidable.

For several years past, the turnpike roads of this county have been under the direction of treasurers, who are trustees of the roads, and are appointed by the trust at large, at a meeting held for that purpose. A knowledge of the fundamental principles of making roads is not deemed at all necessary to the election of such treasurers, but they are generally some respectable gentlemen in business, (if near town) and whither perhaps they go every day. Each appoints some inferior tradesman of the district in which he lives to be the surveyor, and who may be a carpenter, a bricklayer, or any other profession as it may happen; so that without a particle of knowledge in the maintenance and principles of roads on either side, is the expenditure of hundreds of pounds committed to the day labourers, who are for the most part old and decrepid, and who being generally left to themselves, take every advantage: and as the surveyor does not know how much should be done, he is easily imposed upon by the men; and as the money does not come out of his pocket, it is not

very material for him to give himself much trouble about it. Thus from the want of experience in the surveyor, and the want of leisure in the treasurer, these roads, which, from their proximity to the gravel on all sides, might, under a proper system, be kept sound and in good condition all the year round, are found to be daily diminishing, and the public will ere a few years longer find it expedient to take some steps to remedy so great a defect. The narrow policy which has hitherto prevailed in apportioning only the allowance arising from the tolls, which years ago the act of parliament had set apart for the maintenance of each division, without considering that the increased population of certain divisions would produce a wear and tear equal to twice the allowance, and sometimes a great deal more, would at this time of day, it might be imagined, be dispensed with; and as the trust are vested with a discretionary power, such aids would, without difficulty, from time to time be granted, as would be sufficient for all the purposes that the state of the road might require—But not so. Every treasurer finds means to get rid of the money allotted to him in the most judicious and economical way perhaps that he could devise. But should he be so unfortunate as to exceed his allowance, be the necessity of the case what it may, he will have the pleasure of advancing the money out of his own pocket to the labourers, and for materials for a length of time, for the honour of being placed in a situation from which he can derive no personal benefit, but subjects himself to all the calumny and reproach in suffering the road to be in a worse state than he has the abilities either of knowledge or money to prevent. From all which it will evidently appear, that the present plan of conducting the turnpike roads in this county is fundamentally wrong in theory and practice, and that nothing short of pursuing measures the very opposite of what has hitherto been adopted, will answer the end. And first, we beg to lay it down as a position, that there can be but one solid plan upon which all roads should

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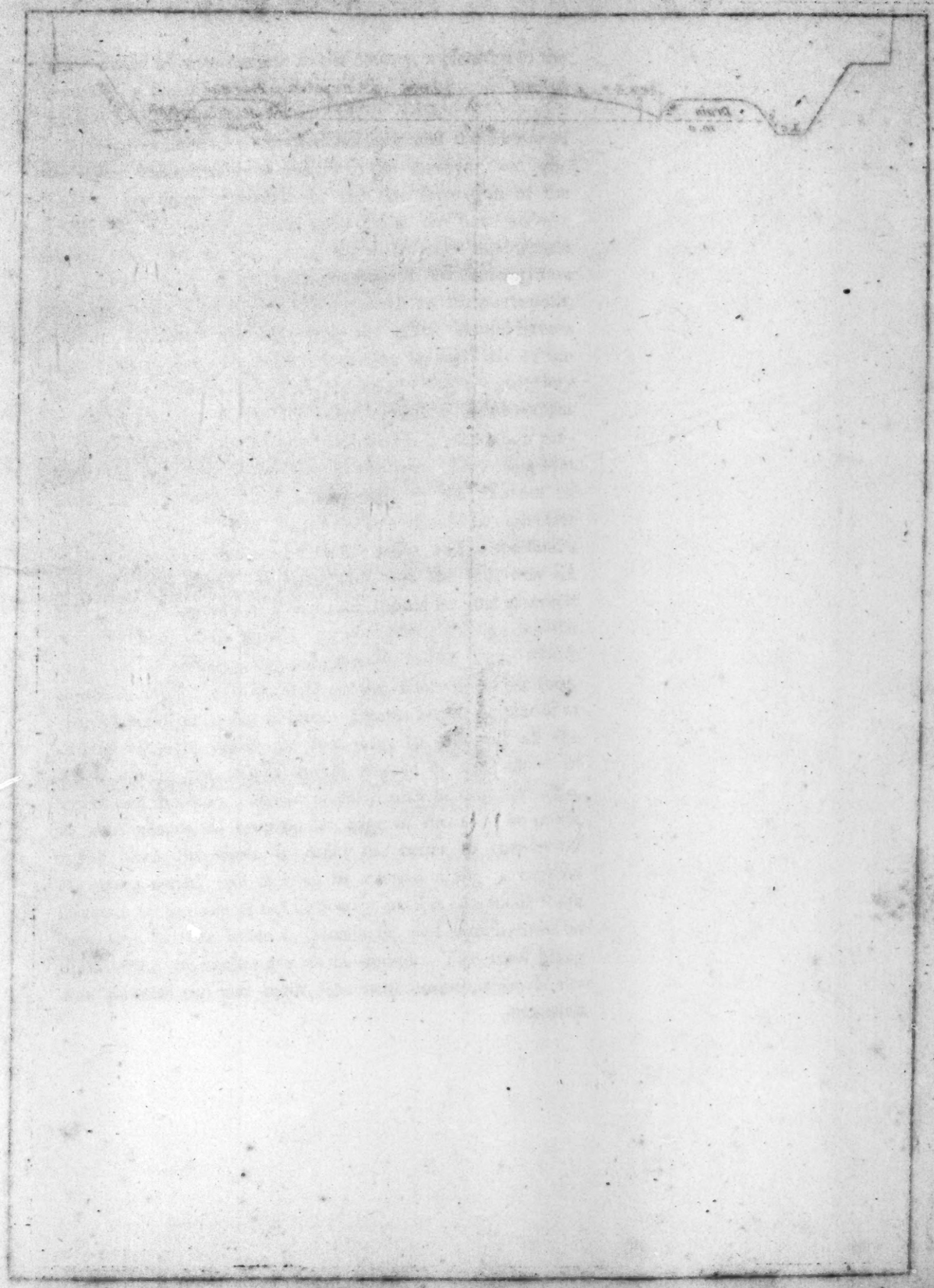
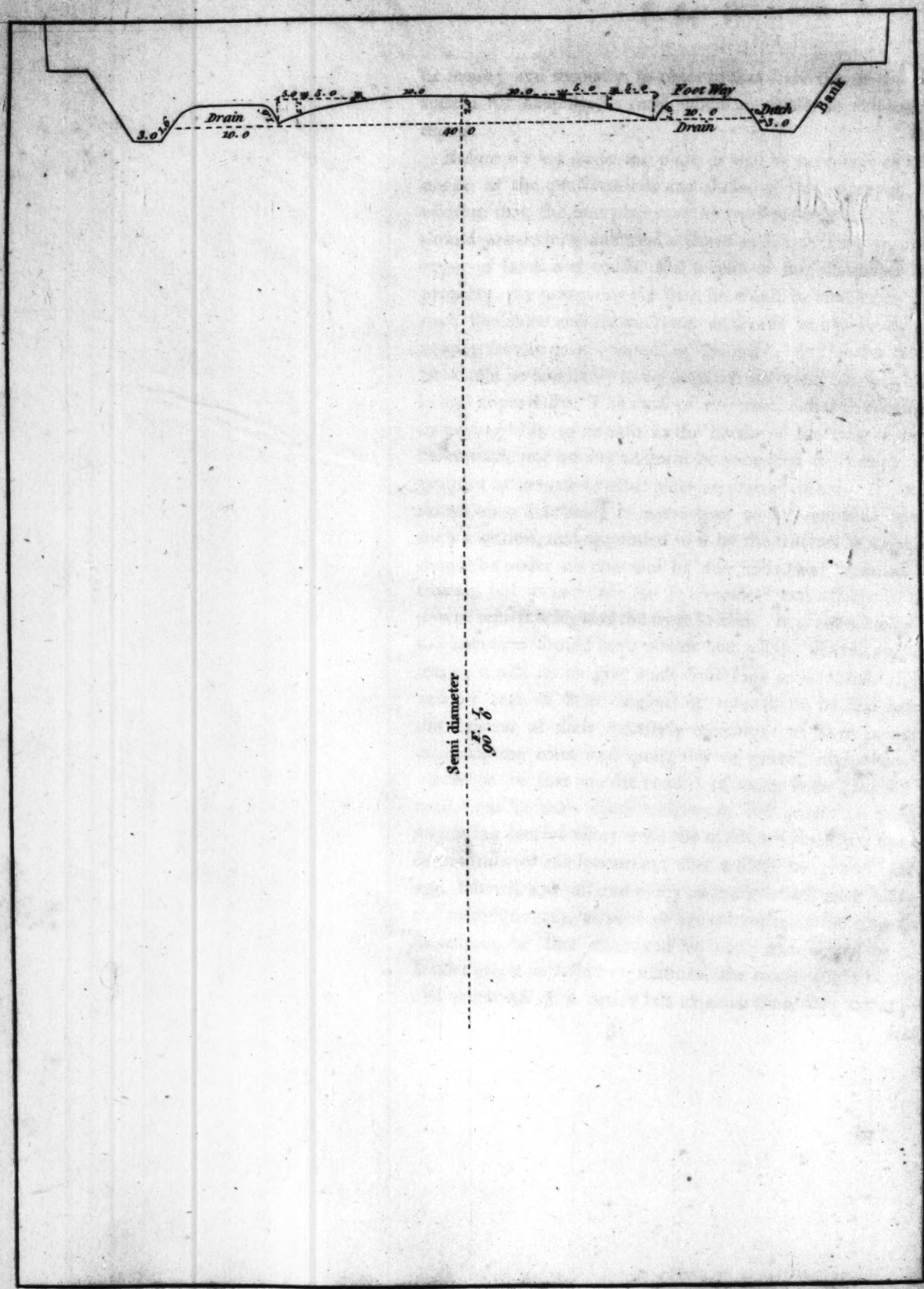
be made; and secondly, to observe that there can be but one system for keeping the road, when so made, in substantial repair.

Before we lay down the plan, it will be necessary to take notice of the qualifications and duties of the surveyor, for without that, the best plan may be rendered ineffectual. He should possess long and tried abilities and experience as a surveyor of lands and roads, and a man of fair character and property. By possessing the first, he would be enabled to give such directions and instructions as would be absolutely necessary for the good conduct of the road; and by the latter, he would be less likely to be drawn from doing his duty fairly and impartially. The cash of the trust, either in receiving or paying bills, to remain in the hands of the treasurers as heretofore, nor on any account be permitted to receive any gratuity or perquisite other than an annual salary. It is submitted also, that being in possession of the requisites to fill such a station, and appointed to it by the trustees at large, he should be under no controul by any individual treasurer or trustee, but subject only for his conduct and actions to that power which delegated the trust to him. It is submitted, that this surveyor should have power over all the district surveyors, so much as to give such directions as he thinks right; and in case of their neglect or refusal, to be laid before the trustees at their quarterly meetings: to have power to examine the sorts and quantities of gravel, and when and where to be laid on the roads; of using what quantity of road sand he may think necessary, and power to prevent any being carried away until the roads are supplied: to have command over the labourers: that all bills for gravel, carriage, labour, and all and every account which may relate to the turnpike roads, to prevent imposition upon the respective treasurers, be first examined by him, and signed by him. Under some such like regulations, the roads might be made and preserved at a much less expence than they are at pre-



Ground Plan of a Turnpike Road
1/16 of an Inch to the foot



sent, would be an ornament to the county, a pleasure to the traveller, a considerable saving to the land-owner, and a pattern to the kingdom.

Having pointed out the qualifications and the nature of the office indispensably necessary to the surveyor, we proceed to lay down the plan for the due formation of the road; and for more general satisfaction, we have added a sketch also. In the first place, the width of a road should be just as much as the extensiveness of the thoroughfare requires; that is to say, every approach to the metropolis, and for a distance not exceeding six miles, should have a road of forty feet wide, with a foot-way on each side of ten feet: beyond that distance the road may with great propriety be reduced to thirty-four feet wide, which is sufficient for four carriages to pass abreast, and which is more than perhaps may ever meet at one time in one spot. Exceeding this width all is useless, and adds greatly to the expence of keeping in repair. The foot-way here should be eight feet wide; beyond the distance of twelve miles, and to the land's end, the road should be thirty feet, and the foot-way six feet. The convexity of every road should be just so much as, according to its width, no water shall lodge on the center or on its sides, but pass quickly to the edge, which should be higher than the ditch on the other side of the foot-way by eighteen inches at least. Drains are to be placed at certain distances under the foot-way, to take off all the waste water, and which should always be kept clear of weeds and foulness. However far it may be impracticable, in some places, to keep up the edge of the road so much higher than the ditch, in order the better to convey off the waste water, still it may be carried along a narrow channel by the side of the foot-way, until it arrives at some spot that may be made to receive it, and which must be done where no ditches are to be found. The road being thus planned out and made, the next consideration is the

materials and the time most proper for laying those materials on the road. The gravel that is to be found in the vicinity of London, is not of the most durable nature, and therefore it becomes necessary that all possible care and attention should be paid both to the time and manner of laying it on: it would be the height of impolicy to lay it on in the winter, because it would lose its effect, would be soon reduced to mud, to the destruction of the horses, and the consequent retardation of that business which good roads would tend to expedite. Hence it will follow, that the only season to make good sound roads, is in the summer: the days are then of a sufficient length to do every necessary day's operation; the weather is for the most part dry and fine; and what can be more desirable than to complete such work in such weather? In March the surveyor begins to shape the road from one end to the other of his division, by removing the inequalities, paring down the sides, and making up the road. When this work is finished, which to do well, will take up some time, he will begin to gravel in such quantities as he may think necessary; and in such places where the road is most worn, additional portions must be laid; so that the whole road may appear uniform and regular, without hill or hole. This must be attended to through the course of the summer; and the winter's coating must be laid on in the months of August and September; but not later. By this means the road will become compressed, and the surface rendered hard and firm. Nothing more will be required all the winter, than to prevent the water from lodging on any part of the road, to keep the channels constantly open, and to keep it regularly scraped as soon as it becomes muddy, which the longer it is suffered to be so, the softer the road gets; because every shower, instead of passing quickly away, is retained by the mud, and from which it receives more injury than people are aware of. Every rut that appears should either be pecked in, or filled up, with

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the soundest gravel, and the same by the holes. With respect to materials where, there is no choice, the best must be selected of such as there are; and the deficiency must be made up by the time as well as manner of using them.

We cannot close this account without noticing the impolicy of watering the roads in the summer; for however pleasant and convenient it may be to be free from dust, yet the watering of such roads proves by their uniform badness, at almost all seasons, how much it wears them; and the inevitable bad effect it has upon them; and therefore wherever that is practised, and pipes for the conveyance of river water are laid, it is in vain for the public to expect or to look for good roads there.

With regard to the parish roads, a mixture of good and bad, as is generally the case, is every where found; as the office is elective, and passes from the one to the other every year, and among a certain class of the inhabitants, it too frequently happens, that as the ideas of the successor do not correspond with those of his predecessor, so, instead of following up what he had judiciously begun, a fresh system is pursued; and thus is the money squandered away in idle and futile pursuits, instead of lowering the rates, by following wise measures. The money that is thus sunk, would generally more than pay an able surveyor, and one surveyor might superintend several parishes.

WOODS AND WOOD LANDS,

WITH SOME THOUGHTS ON THE PROBABLE SCARCITY OF TIMBER IN THIS COUNTY; THE MEANS OF REMEDYING IT, AND FOR IMPROVING THE PRESENT MODE OF RAISING TIMBER, AS WELL AS FOR SECURING IT WHEN RAISED.

IN the first part of the survey of this county, a full and particular account was given of every common, and piece of waste land, or barren heath, that is to be found in the whole district, marking distinctly, as we proceeded, the quality of

the soil, and its aptitude to the growth of oak and other timber; from whence it will be deduced, that there does exist in this county a large tract of land, uncultivated and unemployed, and which, without injury to any person, might, under a proper system, be in part appropriated to the growth of timber, and ultimately tend to a lasting benefit to this kingdom.

It appears but too visibly manifest, that the prospect of a deficiency does not so much arise from the want of a progressive state of timber, but from the present unfortunate system of cutting it down, as soon as it attains that age and size which would make it so desirable for this country that it should remain, as it is then past all danger; (the size we mean is about eighteen inches diameter) as well as in the mode of cutting down the underwood in coppices, leaving and exposing the young and tender sapling to every wind, and to all weathers, thereby giving it a check, which, if it does not take from its height, certainly much injures the tree.

Might it not be worth while for Government to purchase such timber standing at a fair valuation; and by an agreement with the proprietor to suffer it there to remain until wanted, paying a certain annual rent as might be deemed adequate for the use of the ground they occupy? Every person having oak to sell, in a situation to be conveyed to any of the dock-yards, to be obliged to make a tender of it to Government first, and upon their refusal, to be at liberty to dispose of it as he pleased; and no man should be at liberty to cut down one tree without directly planting three in its stead, and which he should engage to protect effectually. This would be making a salutary provision for a future day; of which measure the good policy must be very obvious.

Having premised thus much, and offered our ideas of what may be the cause of the probable scarcity of timber, we next proceed to remedy the pretended defect; and this

can only be done by inclosures; and if it were wanted to bring further proof of this necessity, we need only refer the Board to that well digested production, the eleventh Report of the Commissioners of the Land Revenues of the Crown, who have expressed, in direct terms, their strongest apprehensions, "That the time is not very distant when we shall have good cause to repent our want of attention to so necessary an article of our defence;" and they further press it as an act of indispensable public duty, "that every possible means should be adopted, without loss of time, for raising a supply equal to our future wants." If any thing could rouse the lethargic spirit of our countrymen to a due sense of what they or their posterity have to expect, by continuing to cut down without mercy that which should form the bulwark of this nation, it would be, that they were made thoroughly acquainted with this Report, and which was undertaken by gentlemen capable of being furnished, and with the strongest desire to be furnished, with the most authentic information that could be procured. Taking it for granted, then, that inclosures one day or other will take place, and must take place, we shall set out by submitting a mode, the most eligible, in our opinion, that can be adopted, for inclosing those wastes we have been speaking of, preparatory to their being planted. As a preliminary step, however, it will be necessary that a regular and proper survey be made of the whole of the waste in each district, upon as large a scale as may be thought adviseable, ascertaining and marking, with as much precision as possible, the quantity of land belonging to each manor, to each proprietor, and to each parish; delineating the hills, the plains, and the valleys; and where any variation of soil takes place, to describe it. From this plan, subdividing ones may be made, allotting the hilly parts of certain dimensions for plantations; the flat and low parts, of certain dimensions also, for arable and pasture, as the soil may be suitable; the whole

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of which to be inclosed, as will be hereafter described. In making these subdivisions, much judgment will be required to apportion to each its due proportion of hill and dale; and there are thousands of acres of flat and low land, from Hirtwood to Haslemere, where springs are to be found, and which, being collected together, might make a small rivulet. A part of such land, where it can be had, should be incorporated into the hill and dale, so as to make proper sized farms. On some desirable spot, the house, barns, and other offices, may be erected, and which should, as near as possible, command the farms. The inclosures of arable and pasture, being made agreeable to the plan as laid down, under the consideration of "the review of the common fields," should have a ditch round each, the better to keep the whole dry, as well as to convey the water from different parts, into certain reservoirs or ponds that may be made in particular parts of the farm, for the convenience of the cattle. It would not be amiss also, that particular spots were set apart, having an acre or two of ground to each, adjoining to each farm, for the purpose of erecting one or more cottages, and the ground would enable them to raise a few potatoes and other vegetables.

Having thus made provision for the agricultural part, proceed we next to the hilly part for the plantations. In order to surround which, it will be proper to throw up a strong double bank of earth, eight feet at the base, and five feet high; both sides to be paved with what turf may be found on the spot, and on each side good wide ditches. Handy men will do this for two shillings and sixpence, or two and ninepence per rod of sixteen feet and a half. On the top of this bank let two rows of furze be sown and two of quick, or more provincially white thorn; the latter to be planted in two rows, nine inches apart, between the two rows of furze, and as near to the outer edge as may be; a rough post and rail may be desirably placed on the top for a few years,

to keep out the cattle. Every three or four years this furze may be cut down, cutting the rows close to the ground alternately, and repairing the quick annually, where it may have failed. A fence composed of furze is only to be recommended against plantations, and quick for the arable and pasture. Having thus bounded your intended inclosure for plantations, or such part as you can conveniently plant each year, the next consideration is the nature and quality of the soil; and this requires that attention which, we are sorry to say, is so little regarded, and which is the occasion of so much money being spent unnecessarily, so many years being lost, and with so much ill success, and arises from no other cause than the ignorance of the planter, not knowing, or what is worse, careless in the selection of such plants as are suitable to the soil. "In vain would a man plant oaks on the sandy moory soil of Bagshot Hills, the species of pines and firs on the strong clays of Sussex, the beech on the wet and boggy parts of Lincolnshire, or the poplar on the chalk of Dorsetshire; and yet strange as it would seem, and as it really is, such is done every day, notwithstanding it is clear to a demonstration, that properly disposed, no soil in this country but what is peculiar to one or other of these species of tree, and in which it will succeed to answer every purpose that is required of it. As a proof that what we have advanced relative to the soil of Bagshot, not being barren, is not fallacious, we beg leave to observe, that that very soil, which is by so many said not to be worth cultivation, is so very desirable and so very much in request by every nurseryman, that he can scarce grow a plant that is a native of America with any tolerable success, without having for the principal part of his composition, equal to four fifths of this species of soil. It may be said, that these are only low flowering shrubs. But if he knows any thing of the plants that are brought from America, he will be convinced that there are a greater variety of fine oaks, than are to be met with in any part of Europe, together with ash, birch,

birch, maple, lime, platanus, cedar, and hickery, all which grow to an amazing height and size, besides an innumerable variety of pines, firs, and larch. So much then for the soil of Bagshot. There are other soils equally light and sandy, but of a yellow cast, and equally deserving the appellation of barren; and yet what would become of the plants from the Cape of Good Hope, the East and West Indies, but for this species of soil? Of the former we have for a great many years had numbers of loads annually, and would have it in greater quantities if the distance did not prevent us: of the latter, we annually draw numbers of loads from the sand pits at Blackheath. And wherever any of these soils make a part of the natural composition, the greatest part of our forest trees will thrive well. But we will go nearer home for proof. There is at this time growing upon this said barren Bagshot Heath, numbers of young birch and Scotch fir, to all appearance in a state of nature. Whether they may have been sown by any particular person, we could not learn: they, however, only want now to be protected from cattle, &c. and they will soon cut a very conspicuous figure, and that too without the assistance of manure or cultivation. Having made this digression, to do away the idea of land being barren, we revert to making the plantations. That soil which lies to the south and north, and north-east of Farnham, being on the hills composed of a deep black sand, should be planted with Scotch spruce and larch, with a few silver and balm of Gilead firs, skirted by six or eight rows of beech. For this plantation no preparation of soil is necessary, but the holes only dug for the plants, and that they are planted as soon in the autumn as possible, that the whole may be completed before Christmas. In the lower and more sheltered parts, a mixed plantation may be made, composed of birch, firs as before, sweet chesnuts, horn-beams, hollies, and skirted by beech. In every plantation it would not be amiss to sow a few pounds of laburnum seed, which, as the hares (those great

destroyers

destroyers of all young plantations) are very fond of the young shoots, they might be drawn from the firs, &c. until they are got out of their reach. It is observable, and not less remarkable, that where there are any plantations of firs, on the north and east side of hills in similar soils, that they grow faster and taller, the grain of the wood is more compact, and the tree more full of turpentine, (and to make them more free of knots, it only requires that the trees should stand so much the thicker and closer, which will be the means of killing the under branches before they get to any size to cause large knots) than those which are produced from a full exposure to the south and west, and upon which the sun has always so much power. All trees produce the best timber, that have the least sun. Some gentlemen with whom we have lately had conversation upon the value of firs, have gravely assured us, that they are of no manner of use, and not worth the expence of cultivation; but these gentlemen, we are well assured, have not inquired into the value of those at Moore Park, and Waverley Abbey near Farnham, as more particularly described in the former part of this Report; nor of those at the Duke of Bedford's late purchase in the parish of Warrendon in Bucks; as well as those in Bedfordshire, or at Long Leat, the seat of the Marquis of Bath in Wiltshire, where they would find a complete refutation of what they have advanced. As a strong inducement to set about the planting the hills, and inclosing the whole, it is to be understood, that the Basingstoke canal takes a course at least fifteen miles through the heath, and this being now effected, we have no hesitation in saying, that in a few years the timber which may be supposed to be growing on these hills, would make that part now waste, of as much value as any of the inclosed land in the circumadjacent districts. Thus much of the hills. The lower lands are of a more loamy nature, and although not directly the soil for oak, and consequently it cannot be quite so good, yet will grow well, and perhaps

may hereafter save that, which may be produced from more congenial soils, for the more common purposes to which the best oak is too often applied. Let no one then say, that while we have the means of providing trees that are congenial to those soils before mentioned, and of covering these heaths profitably, that we have one acre of barren waste in this kingdom.

In making these divisions and sub-divisions, it is to be presumed, that due care will be had to the planning out the roads from town to town, and from town to village, and with as many communications to the canal as may be thought adviseable, always making choice of the shortest and safest ways to each. The plan of the roads being thus settled and staked out, let them be ploughed up in the first instance into as high a ridge as may be thought safe, and after they have lain some time to settle, the surveyor must come, and with his men, to fill up all the great and unsafe hollows, and shape the whole into its proper form, and which should not be done too sparingly at first, being careful that all ascents and descents are regular and easy, which will give a lasting form to the road, as well for the safety as for the pleasure of the traveller.

The outline of a plan for the inclosing those heaths which comprize that range of country from Aldershot in Hampshire, to Weybridge in this county, being thus given, and which will equally apply to those places whose soils are similar, we proceed to those innumerable lesser wastes that are every where scattered over the eastern and southern part of it. We have, in describing them, given the quality of soil, and therefore all that need be advanced here is, that whenever they are inclosed, it may make a part of the contract with the proprietors, that at least a certain portion of each, as commissioners under the inclosure should think right, should be appropriated to the growth of such timber as appears most congenial to the soil, and which will in general be found to be oak.

The

The next thing that presents itself to notice is the planting. If a period of several years experience in the art of cultivating all the species of forest trees, together with a very extensive practice in planting them in all kinds of soils and situations, as well for use as ornament, can enable a man to derive any knowledge, it may be presumed, without the imputation of vanity, that we are intitled to lay some claim to the consideration of the Board of Agriculture. In this particular in practice, we certainly shall differ from the custom of the day. With men of experience, we feel easy in what we shall advance, and with those who judge from theory only, it will not be worth our while to contend.

It is not for us to determine upon the number of acres which shall be taken in from each, or any of the wastes, or how they shall be inclosed; we take it for granted they will be inclosed; and in that situation we shall consider them. If the land is wet, deep circumferential ditches will very much drain, but it must be effectually done before we begin to plant. If the ground is ready early in the autumn, it must be skim ploughed, and then trench ploughed. In this state it may remain until spring, when the frosts, &c. will have pulverized the ground and made it in a fit state for planting. But if it cannot be got ready for this autumnal operation, it may be ploughed as before, and well harrowed in the spring, and a crop of potatoes may be planted thereon, the repeated landing up of which (by a plough for that purpose) will open, meliorate, and pulverize the ground in the finest way imaginable, and will besides, if the season is at all favourable, amply repay all the labour. But if the crop should turn out never so bad, still the land will not be the less prepared, and in that way will answer the end.

As soon as the autumnal rains come on, and the potatoes are taken up, nothing more is required than to horse-hoe the ground; (or in case of not having that instrument, let it be well harrowed) which will level all those inequalities which

the taking up the potatoes will have occasioned. Having in the spring of that year sowed (in some soil made proper for the purpose, in drills a foot wide) such a quantity of firs, oaks, chesnut, beech, birch, sycamore, maple, hornbeam, platanus, and holly, with a few wild black cherry, as may be more than sufficient for your intended plantations, the ground being every way prepared and made ready, (as much at least as you can plant in one season, which, as those that were raised from the spring sowing will not have attained sufficient age and strength the first year, the plants may be got at any of the neighbouring nurseries, at a very easy rate: this is only meant that another season may not be lost) begin by setting out the plantation, the oaks not to be more than twelve feet apart, and the other sorts, which are to compose the mixture, not more than four feet. Let the holes then be set out and properly made; a proper person must superintend the taking up the trees in such proportions as may make a regular mixture, and that as little damage as possible is done to the roots. These are to be carefully pruned, and the tap root a little matter shortened (but the better way is, that as the seedlings will not be removed until the second year, and being sown in drills, a skilful person, with a very sharp spade may, in the month of November or February, undermine and cut the roots, from four to five inches under ground; they will in the succeeding summer furnish themselves with lateral fibres, which will be of very material benefit to the plant, and when taken up will require nothing more than with a sharp knife to cut off any bruised or damaged root, and to trim the points of the fibres which would otherwise perish) as much expedition as can be used in this sort of work is necessary, in order that the roots may not be too much dried. A careful active man will then follow with the plants, which he is to distribute according to the proposed distances; one man will hold the plant in the hole, while two will fill up the ground, the finest of the mould being put

about

about the fibres and the roots, gently trodden with the foot, and finally filled up with the remainder of the soil, always taking care to close up the surface about the plant with the foot. Men that are handy and accustomed to this work, will plant a great number in each day; the holes to be made by contract, but the trees to be planted by the day; two feet over, by two feet deep, is a good size. Avoid planting deep, but as tight as possible. All the trees may be planted at two years old. Let at least one third of the plantation be quick growing trees, and whatever of them fail must from time to time be replaced. All which having done their duty, by affording due protection to the oak, may with great propriety, as often as is necessary, receive a judicious thinning, until at last nought is left but oak, and here and there a chesnut and a beech. We do not speak problematically, when we assert, that independent of the shelter, these thinnings will in a few years purchase the fee simple of the ground. Having given it as our opinion, that plants of two years old were best calculated for such a plantation, we do not mean thereby to exclude the planting trees of a larger size, because we are sensible it is to be done with great safety and with as good success as to making or becoming good timber. Oaks and firs, however, are better not to exceed four years old, each having been before transplanted; but all the other forest trees may be planted from five to six feet high, but not exceeding.

Thus much with regard to planting. We shall now conclude this Section with a few observations on the mode of securing it when raised; and that leads us to suppose the plantation made, in full vigour, and arrived at that period when it is necessary that it should be thinned. We shall begin by bringing to view the present mode of cutting down underwood, in which there are generally large quantities of oak saplings, and then submit the plan we strongly recommend in lieu thereof.

For

For a moment let us take a view of a coppice or plantation, consisting of any number of acres, this week in full crop, so thick, perhaps, that a bird can with difficulty penetrate, the succeeding one, the whole of it cut down, saving the young saplings, whose cause we are now pleading. "Is it not lamentable to see these very trees, which are one day to form the ornament, perhaps the bulwark of this great and happy isle, nursed, as it were, in a hot-bed during their infancy, suddenly bereft of every protection, and exposed to all the severities of winter's chilling blasts, and tempest's cruel scourge? Figure to yourself these trees, twelve to sixteen feet in height, without a single branch but two or three near its top, standing like so many May-poles on the remains of the coppice, at a distance of forty feet and upwards apart, and ask yourself if reason, if common sense, can justify such a procedure? Say rather, "Is it not obvious to every unprejudiced mind, that the sudden exposure of trees, from a warm and sheltered situation, to extreme cold and frost, must give such a shock, and consequently check to vegetation, as must materially injure them? And hence it is that they rarely, if ever, produce a stem higher than twelve or sixteen feet, (which might have been the height of the underwood before felling) but branch out into a number of small ramifications, which carry the appearance of a pollard, rather than that of a tree; added to which is the danger they run of having their branches torn off, and not unfrequently the whole top carried away by the violence of the wind. In opposition to a custom so injudicious, we beg to submit the following as the better plan: When the plantation is arrived at such an age and height as to require thinning, begin by lopping off the branches of such trees as were originally intended to be taken away. This will give air, strength, and light to those which are to remain, for several years, and will continue to be that sort of nurse as before. At whatever period it is found necessary to thin the wood

the second time, (for different soils and situations will be more or less productive in growth) suppose it should happen in five or six years, cut down and transplant every other tree, but saving all the oaks. This will give them another assistance, and will protect them to the last thinning; and if by chance any of the lateral branches of the oak should stand in need of being shortened, in order the better to assist the leader, and to prevent as much as possible the tree from becoming a pollard, let a skilful pruner be employed, and who need not be afraid of the knife nor of the saw where it is necessary; and if done judiciously, no danger need at all be apprehended. As there will be now four times the number of oaks on the ground than are intended to be left for timber, at a seasonable time, which may be known by the state of the trees, let every other oak be taken away, and so proceed from time to time, until every oak tree is at the distance at which it is to stand for timber. The plan thus proposed is attended with no additional expence whatever, because the extra trees being suffered to stand for such a length of time, the oaks become larger and finer in a much shorter period, and consequently will amply repay every difference occasioned by delay or any other circumstance.

As we noticed the necessity of skirting plantations of firs and larch, with beech of a considerable thickness, so it is necessary in an equal degree, that the external parts of these plantations should be both thicker and more irregularly planted, and when thinned out, should be left thicker than any other part of the plantations, in order to break the strong current of wind which is oftentimes very destructive to woods, and ought to be guarded against with all imaginable care.

MANUFACTURES, AND THEIR EFFECTS ON AGRICULTURE, CONSIDERED.

THE manufactures of this county greatly exceed those of any of the counties contiguous to the metropolis; and which consist of distilleries, vinegar makers, potteries, hatters, wax-bleachers, snuff-makers, gunpowder-makers, starch-makers, paper-makers, leather-dressers, and the whole branch of callico printers: but notwithstanding there may be a few instances where, from the particular nature of some of the manufactories, numbers of poor may be brought on the parish, to the great increase of the poor's rate, of which the land must bear its due proportion, as well as increase of rent, labour, and provisions, in the immediate proximity to all those places, yet, as the consumption of every produce of the farm, whether it be in butter, eggs, poultry, hay, straw, or corn, must necessarily be increased in a certain proportionate ratio, a ready sale is always found, and consequently much of the expence that would be incurred by sending every thing to a distant market, is saved to the farmer. It is also generally observed, that the crops in those neighbourhoods are better got in, by reason of the indulgence usually given by most of the manufacturers, to many of their people at that season of the year, to go out as harvesters; which, besides changing the species of labour, is a kind of festival, and gives them health and spirits to recommence their former and proper occupations. From thence we conclude, that manufactures have no ill effect upon the agriculture of this county.

DISTRICT PRACTICES.

THE practices of this district are in no way noticeable; and the only reason that can be assigned for it is, that among the more opulent gentlemen of the county, by whom every improvement should be encouraged by example, it has not until lately been taken up with spirit. It is to be hoped it will be pursued with energy, and that the encouragement held out by the Board of Agriculture, (after the wastes and common fields are inclosed) will infuse a desire for improvement among all ranks of agriculturalists. We must except out of this remark, however, the very great exertions that have been made by Mr. Ducket, near Esher, whose farmery and implements, mostly improved by himself, deserve every commendation. Nor can we pass in silent approbation, on the extraordinary pains that are now taking on the Royal Farm near Richmond. Every thing that so conspicuously marks the leading traits of the august Personage for whose recreation and amusement this concern is undertaken, are here eminently displayed; the most scientific and practical agriculturalists are employed; the most improved implements are used; and every thing, both as to stock and instruments, that the ingenuity of man can suggest, will here find a fair and impartial trial.

From such an undertaking, so patriotically begun, and so successfully laboured, much good to the country must necessarily flow. And it will be well indeed for this kingdom, if noblemen and gentlemen of large landed property would, with a laudable ambition, emulate so noble an example: they would derive more solid recreation than is to be found in the gaities of the court, or in the pursuit of politics.

IMPROVEMENTS PROPOSED.

THE improvements that have occurred to us, and which this county appears to stand most in need of, consist in a better rotation of crops; by the more frequent introduction of artificial grasses, green crops, and farinaceous roots.

The strong and wet lands would, perhaps, be better changed from their present arable state to pasture, as by that means they might with greater ease be effectually drained; and consequently that manure which is now spent on them, would be reserved for the more elevated situations, and would thereby turn out to more important and beneficial purposes. Wherever there is not a due proportion of pasture land, and until green crops are more generally introduced, it is impossible that the farmer can properly manure all his arable; and therefore that may account for the poverty of the crops to be met with in some parts of the county.

Much has been said, and a great deal has been written from time to time, about the impolicy of large farms; but wherever these are to be met with, the greatest improvements, and the greatest regularity and good management are to be found, and, generally speaking, there only. But were a man to take the unpopular side of the question, and argue upon the great loss which the public sustain by every small farm, his humanity and want of feeling would be immediately brought forward, and he would be stigmatised as the greatest enemy to the poor farmer. But without filling pages with arguments to prove our position, which at last will perhaps not convince, let any man compare the produce of a certain number of acres from the farm of fifty and sixty pounds a year, with an equal number from that of five or six hundred a year, and of equal quality of soil, and it will be found that in quantity and sample the latter exceeds the former very greatly; and from what can that proceed but from the

superior

superior cultivation which his capital enables him to give? By a greater proportion of stock which the larger farm can sustain, and with a less proportion of expence in horses and servants. On the other hand it may be said, that these men having so large a capital can keep back the produce, and thereby keep up the price of grain, which, if that were really the case, the bounty, or which is nearly tantamount, the low duties payable on importation, will always correct; but let the farms be never so large, the great increase in consequence of the additional quantity of arable land that will be brought into tillage, and the superior cultivation of the common field, by inclosures, will produce abundance of men, who from various motives will be induced to bring their produce to market. After all, perhaps, it would be politic that no farm should be under one hundred pounds a year, and but few exceeding five hundred pounds.

OBSTACLES TO IMPROVEMENTS.

AMONG the various impediments to improvements in agricultural pursuits, we shall beg leave to state two that very materially operate to the disadvantage of this county. The first, we shall take the liberty of stating at some length.

In a previous part of this Report, we have remarked upon the vast tracts of common field land, commonable land, and barren heath or waste, which are to be met with in every part of this county. With respect to the common field land, we have before endeavoured to shew the impolicy of letting it longer remain in its present state. It is very immaterial whether the land is occupied by landlord or tenant; for the major part, and we believe we are enabled to speak with certainty, is not more than two-thirds productive;

and how can it be otherwise, if, for a moment we consider the nature of such possessions? The farmer or occupier, whose property or lands too frequently lie intersected by others of his neighbours, and that sometimes at no inconsiderable distance apart, to the very great inconvenience and loss of time to the parties, to say nothing of the disputes and animosities that are continually produced by encroachments and trespasses—the farmer, we say, ploughs his land, and prepares it for the summer crop; but as soon as that crop is off, instead of its being sowed for turnips, or clover, or rape, or planted with vegetables, as cabbages, or borecole, is suffered to remain uncultivated, trampled on indiscriminately; and if the land is stiff, becomes condensed into an almost solid mass, until the season of the year comes round, that he may sow for his summer crop again. By such a practice, and such a custom, the poor are confessedly deprived of a certain portion of very useful labour. But that is not the only evil arising from this very unproductive state. The land thus untilled, cannot remain in a torpid state, Nature will exert herself, and instead of producing an abundance of turnips, or other valuable crops, a mixture of weeds, and every thing that is noxious and prejudicial to good husbandry, is the consequence. The land being thus rendered of less value, as well by its exposure as by its tenure, receives a still less proportion of encouragement by manure. Can it then be at all matter of surprise, that so large a portion of indiscriminate soil, of good and bad, should be so much less productive than the same soils in the same situations in an inclosed state? Do not inclosures afford shelter and warmth to cattle, in the winter? Do they not afford their occasional supply of fuel, as well as useful materials to the neighbourhood? But, above all, do they not give to the farmer the opportunity as well as liberty of introducing a regular course of husbandry, such as is consistent with good management; and does it not from hence follow, that a

greater proportion of sheep and cattle can be maintained on the same quantum of land, and by consequence more substantial improvements effected, greater crops of every kind produced; and with the additional satisfaction, that while it affords pleasure and profit to the farmer, the community at large are also benefited to a very great degree? If these are facts, and which the present appearance of all common field land confirms, of how much importance must not the inclosing of this species of property appear to every unprejudiced mind? And that brings us to consider the impediments that are thrown in the way of inclosures of common field land; and, indeed, it may apply to inclosures in general. It is a known fact, that no common field land, or commonable land, can be inclosed without an express act of parliament, unless indeed by the consent of all the parties interested; but from the nature and disposition of mankind, such a consent is difficult to be obtained, and particularly where some of the parties are minors, abroad, or labour under any legal disqualification. It is indeed almost impossible to procure such consent. With interests so clashing, and difficulties so various, parliament becomes the only resource; but what with the expence in carrying the bill through both houses of parliament, (and which for, aught we know, may be extremely proper) together with the much greater expence of bringing the parties to London, there to wait the unavoidable delays occasioned by other more important concerns of parliament, until a decision shall take place upon the subject, operate in many cases as a powerful discouragement to undertakings of this nature, and not unfrequently to an entire exclusion from the attempt.

With all due submission, therefore, something like the following plan might be adopted—To pass a general act of parliament for inclosures of every description, impowering the magistrates at their quarter sessions to receive proposals from the parties interested in any inclosure; to have power to appoint two or more commissioners, and two able and respectable

table land surveyors, who should, on oath, make a plan of the intended inclosure, and take a view of the soil and situation thereof; to have full authority to make all exchanges of land, and to settle every difference that may arise from the present admixture of property. These commissioners having local knowledge of the premises, and acting under the eye of the magistrates, would proceed with that caution and circumspection so essential to the due administration of justice, and their decision or award might be legalized either by the Board of Agriculture, or by the magistrates at a subsequent sessions, as to the wisdom of parliament shall seem meet. It is presumed, that from some such plan very important benefits to the country would arise; it would awaken a laudable emulation among the gentlemen and farmers, by rendering that secure which in its present state is exposed and insecure; and that emulation once set afloat, who can calculate the advantages? A cold, bleak, and, we may say, lifeless country would be rendered proportionally warmer, as the fences became more and more advanced in years; vegetation would soon feel the fostering influence of shelter and protection; the cattle of every description become more productive and profitable; and in short, (together with the inclosing the wastes) the whole face of the country would experience a change for the better, undescribable. Such, in our humble opinion, would be the great advantages of inclosing the common field land. Much of the same argument will hold good in respect to the commons and barren wastes, which, wherever not capable of being converted into arable or pasture, might with the strictest propriety be planted; for there is no soil, as elsewhere observed, however barren, nor no situation, however bleak and exposed, but trees of some kind or other will grow, and will always more than pay for the trouble and expence, either as timber, fuel, or shelter.

In

In regard to the second obstacle, the payment of tythes in kind, we shall take another opportunity of stating our sentiments upon the subject, and of submitting them to the consideration of the Board.

CONCLUSION.

HAVING thus laboured to render this Report as particular and as general as it was possible for us to do, we have only to return our very sincere thanks to those noblemen, gentlemen, and farmers, through whose kindness we have been enabled to furnish the Board with that information which they have required. If it shall at all answer their purpose, and tend to open the eyes of the public to the importance of the many concerns that are here treated of, it will in some measure compensate for the very considerable difficulties and delays we have experienced from those quarters where a very different line of conduct might have been expected. We have every well grounded hope, that as the curiosity of the country is now awakened, it will look up with anxious expectation to the honourable Board of Agriculture for some well digested system, which their wisdom will be able to mature from those authentic materials which the County Surveys will put them in possession of.

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ADDENDA.

IMPROVEMENTS.

IN drawing out our Report of Surry, it did not occur to us, under the question of what Improvements could be suggested, that there was one, which would be a valuable acquisition to the internal improvement of this county in its agriculture, be a source of considerable wealth to the kingdom in general, and in a particular degree to that part of the district under consideration, where the callico-printing is carried on to so great an extent. It has been hinted to us, therefore, that it might with great propriety be recommended to the attention of the public, and under the judicious eye of the Board, such recommendations or suggestions might be offered for the introduction and cultivation of it, as would soon make it a part of the agriculture of this county. In the course of this Survey, and in various parts of the county, the plants were observed to grow in great abundance spontaneously; and as it improves much by cultivation, which at a former period we have attested, no difficulty con be started against its having a fair trial. The plant under consideration was lately discovered by Dr. Cuthbert Gordon to be a most excellent substitute for madder. Some of the plants were in the year 1778 planted in our grounds, and succeeded to admiration. It may be raised in any quantity, at a moderate expence, much more so than madder can, and the tops of the substitute will answer the purposes of weld in dying yellow, whereas those of madder are fit for no purpose at all. Upon the whole, then, as the improvements in agriculture, whether

whether considered in the light of furnishing the means of food for the inhabitants of this island, of which it appears that in no one article it is equal to the increased consumption, or whether it be towards extending its manufactures, and consequently commerce, by the introduction and cultivation of those articles which those manufactures stand in need of, make a part of the consideration of the Board of Agriculture; so it is not at all doubted, but that under their instructions and guidance, such an alteration will in a few years take place in the agriculture of this kingdom, as will prove the great service which the Board has rendered to the community, and be the means of saving immense sums of money, which are annually exported into foreign countries (which in time of war, is very hazardous, and greatly enhances the price) for the payment of those articles which might be cultivated in this country, and to the consequent increase of population. Vide Appendix, No. I. and II.

APPENDIX.

No. I.

DIRECTIONS

TO RAISE THE SUBSTITUTE FOR MADDER FROM THE SEED,

AND TO

MANUFACTURE IT FOR MARKET.

THE Substitute for Madder is an indigenous plant, or native, of Great Britain, and affects a light, deep, and dry land. The root is the most marketable part of the plant, and runs deep into the ground, sometimes even to six feet, if not prevented by want of proper earth, or some other very material cause: so circumstanced, the tap or main root commonly divides into a great number of smaller ones, many of which being lost in manufacturing the article for market, causes a short crop: in general, however, one acre of suitable and ordinary good land, being deep and well-ploughed, may produce from three to four tons; and one ounce of the seed sown on beds, to be covered with glass-frames in times of frost, will produce plants sufficient to plant out that acre.

The seed may be sown in April, and will come up in ten days, or a fortnight's time, and, in two months after, is fit to be planted out: which, for the convenience of hoeing, a labour that must be duly attended to for the first and second year, and to prevent the lateral roots from interfering one with another, should be done at the distance of eighteen or twenty inches square.

In about four years from the above period, the roots will, without any further trouble than occasionally hoeing, be arrived at their proper point of maturity, at least to that degree of perfection the suitability of the land to the plant can admit of, and therefore should be taken up; but in no greater quantity, at any one time, than may be with ease cleaned of the earth, and, in particular, of a dirty black skin, or bark, which hangs loosely about them, being highly pernicious to the beauty and elegance of their colouring particles, and that may be effectually done by softly rincing them in pure, and, should convenience serve, running water. This being effected, and wiped thoroughly dry, they are immediately put into a stove, previously brought to that degree of heat which stops fermentation without injuring or any way scorching the remaining fine bark. When thus perfectly cured, they are, without loss of time, brought to the mill, in order to prevent their

imbibing the moisture of the air, which they greedily will, if permitted to do, and there put under a stone, on edge, to be grinded down, and immediately casked up. The casks, during the time of filling, are, from time to time, to be duly and regularly pressed by weights as heavy as the casks can bear.

The longer the article remains in the cask, the Dyers may like it the better; nor will they purchase Madder until two or three years, or even more, thus casked up, if they can be otherwise served; and, as the Substitute has a very great affinity to Madder, and its roots are more solid by far than those of that article, it is to be presumed they must require an equal time "to make in the cask," as the Dyers phrase it, that Madder roots do.

The tops of the Substitute, if cut down about the latter end of June, when nearly in full bloom, will answer all the purposes of Weld, particularly in dying cotton and linen, and is to be cured and brought to market in the same manner as Weld. It effectually curdles milk, and gives the cheese a peculiar, but very agreeable flavour.

Comparison will shew, that the colour of our Substitute comes so very near the scarlet of Cochineal, that it loses but little by the comparison; whereas the colour which Madder gives, is, by a like comparison, visibly sunk towards a brown.

Madder is sold at the average price of sixpence per pound, or 56l. per ton, and Cochineal at fifteen shillings per pound, or 1680l. per ton, which amounts to thirty times the price of Madder; yet a pound of Madder dyes two pounds of cloth a good deep colour; and a pound of Cochineal dyes but sixteen pounds of the same cloth equally deep; which demonstrates, that Cochineal is impregnated with only eight times the quantity of dying or colouring particles that Madder is; nor is its colour at all so fixed as that of Madder; notwithstanding which, the Madder, sufficient to dye that quantity of cloth, or sixteen pounds, may be purchased for four shillings, when the Cochineal, necessary to dye the same quantity of cloth, costs fifteen shillings. It is evident, then, upon the whole, that it is the scarlet of the Cochineal which makes it so valuable at market, for, in times of war, it occasionally sells from thirty to thirty-two shillings per pound, and not altogether its being so replete with dying particles. Therefore, as the colour of our Substitute comes so very close to the scarlet of Cochineal, and is at the same time infinitely more fixed, may it not be reasonably presumed, that our Substitute will, in the course of a few years hence, lower the value of that high-priced dying ware, to the ease of the Manufacturers, and profit of the more industrious and ingenious Farmers?

The seed of this plant, we understand, is now sold by Messrs. Dermer, Gordon, and Co. Seedsmen, Fenchurch-street, London, &c. &c. &c.

No. II.

IN 1791, a Select Committee of the House of Commons, consisting of the following much respected and well informed Members, Mr. Wilberforce in the Chair, Sir John Call, Mr. Blackburne, Mr. Elliot, Mr. T. Sanley, Mr. J. Ferguson, Mr. Hawkins Brown, Mr. Duncombe, &c. held repeated meetings upon Dr. Gordon's discoveries in the art of dying fixed and permanent colours from the indigenous plants of this country; and after a considerable time employed in the investigation of their merit, proposed a set of Queries to the most distinguished manufacturers and dyers of Yorkshire and Lancashire; and as these queries, together with the answers, relate to a subject of the highest importance to the agriculture and commerce of this country, and have a tendency to throw a still greater light on what we are farther to expect from our indigenous plants, conducted under the judicious inspection of the Board of Agriculture, we also insert them; and we are the more induced to do so, by the close connection they bear to what we have already observed on this salutary and interesting topic.

A Copy of the Answers of the Woollen Manufacturers and Dyers of Rochdale in Lancashire, to the Queries of the Committee on Dr. C. GORDON'S *Discoveries in the Art of Dying.*

1. Q. Did Dr. Cuthbert Gordon, in December 1789, instruct some of your principal dyers and clothiers, in his secret method of dying *fixed* colours, and upon the great scale of dying?

A. Yes.

2. Q. What are the colours in which he so instructed them?

A. Black, and all the drab and cloth colours depending upon black; yellow, and all its shades.

3. Q. Are the colours so produced, as permanent as indigo-blue, or madder-red, or any other acknowledged *fixed* colour?

A. Yes.

4. Q. Do the principal clothiers, who were instructed in December 1789, continue to dye in their respective manufactories Dr. Gordon's *fixed* colours?

A. Yes.

5. Q. Is Dr. Gordon's mode of dying equally simple and facile as that of the present practice, or is it on the whole more so?

A. Dr. Gordon's mode of dying is equally simple and facile as that of the present practice.

6. Q. Are such of Dr. Gordon's discoveries in the art of dying, as the delegates from your association have been instructed in, made from the *native* plants of this country?

A. Yes.

7. Q. Do the plants the Doctor has already discovered to your association, abound sufficiently in Great Britain, or could they easily be cultivated so as to supply at all times the utmost demand of trade?

A. The plants the Doctor has already discovered to our association, sufficiently abound in Great Britain, and without cultivation, so as to supply at all times the utmost demand of trade.

8. Q. Can you furnish any grounds for estimating the importance of the above discoveries? Is there now a considerable demand for cloths dyed in the old mode of the above colours? Is this demand increasing, and may it be expected still further to extend?

A. The importance of the discovery is such, that no persons will purchase cloths dyed in the old mode, were every one able to distinguish or judge betwixt that and those dyed in Dr. Gordon's mode: the latter is fixed as the cloth, and the former is gone and decayed while the cloth is new. In our opinion, when publicly known, it will greatly increase the demand, and entirely annul the *old mode* of dying.

9. Q. Besides the colours which have been already brought into use, are there any others which you believe, as far as you can judge from experiments tried by yourselves or in your presence, upon a small scale, might be advantageously introduced into practice, whether with a view to their brilliancy or fixedness, attending in those instances also, to the comparative facility and cheapness of Dr. Gordon's mode of dying with the modes now in use?

A. From the instructions we have already received, we ourselves can with ease produce the greatest variety of shades, and in fixed colours, in which, by every day's practice, we are improving. Though there is no great difference betwixt the old mode, and Dr. Gordon's, in facility and cheapness, yet, exclusive of its being of such advantage to the wearer, the manufacturer is relieved from a very painful anxiety and loss attending on goods dyed false colours, they being subject to fade during every process, viz. in the loom, at the mill, on the tenter, at the press, and even on the mercers shelves, producing frequent complaints and disagreeable disputes between buyer and seller.

10. Q. Has Dr. Gordon shewn you, but not dyed in your presence, specimens of cloths of any other colours, which, if produced from *indigenous plants*, &c. &c. as above mentioned, would be acquisitions of importance to the woollen manufacture? And what are those colours, or any of them?

A. Doctor Gordon has shewn us his red, with all the numerous colours depending thereon, from a mulberry to a madder red; and from that to a bright shade, not much inferior in brilliancy to the scarlet of cochineal, and infinitely more fixed, all produced from our own *indigenous plants*, though not in our presence, which, when introduced into practice, will be further acquisitions of the utmost importance to the woollen manufacture.

SIGNED

G. James, and J. Walmsley,	C. Smith and Sons	J. Royds and Sons,
J. Taylor and Son,	T. Smith and Nephew,	L. Newall and Sons,
R. Gore and Sons,	B. Smith,	J. Holland,
Robert Leach,	J. and R. Holt, and Co.	J. Taylor and Jackson,
J. and G. Hamer,	T. K. Vavasour,	A. J. and R. Whitworth,
T. Fildes,	T. Ball,	Smith and Holt.
J. Vavasour,	J. Kenion.	

Rochdale, August, 1791.

A Copy of the Answers of the Woollen Manufacturers and Dyers of Saddleworth, in Yorkshire, to the Queries of the Select Committee on Dr. C. GORDON'S *Discoveries in the Art of Dying.*

1. Q. Did Dr. Cuthbert Gordon, in December 1789, instruct some of your principal clothiers in his secret method of dying *fixed* colours, and upon the great scale of dying?

A. Yes.

2. Q. What are the colours in which he so instructed them?

A. Black, and all the drab and cloth colours depending on black; yellow, and all its shades.

3. Q. Are the colours so produced, as permanent as indigo blue, or madder red, or any other acknowledged *fixed* colour?

A. Yes.

4. Q. Do the principal clothiers who were instructed in December, 1789, continue to dye in their respective manufactories Dr. Gordon's *fixed* colours?

A. Yes.

5. Q. Is

5. Q. Is Dr. Gordon's mode of dying equally simple and facile as that of the present practice, or is it on the whole more so?

A. Dr. Gordon's mode of dying is equally simple and facile, and, after a little experience, more so than the present practice.

6. Q. Are such of Dr. Gordon's discoveries in the art of dying, as the Delegates from your Association have been instructed in, made from the *native* plants of this country?

A. Yes.

7. Q. Do the plants the Doctor has already discovered to the Association, abound sufficiently in Great Britain, or could they easily be cultivated, so as to supply at all times the utmost demand of trade?

A. The plants the Doctor has already discovered to the Association to be used in dying, we apprehend, sufficiently abound in Great Britain, without cultivation, to supply the utmost demand of trade.

8. Q. Can you furnish any grounds for estimating the importance of the above mentioned discoveries? Is there now a considerable demand for cloths dyed after the old mode of the above colours? Is this demand increasing, and may it be expected still further to extend?

A. The grounds we have for estimating the importance of the above mentioned discoveries are—the demand for the cloths dyed after the Doctor's mode, which are very considerable, and still increasing; and the demand for cloths after the old mode, very inconsiderable, when compared with the new.

9. Q. Besides the above colours which have been brought into use, are there any other which you believe, as far as you can judge from experiments tried by yourselves or in your presence, on a small scale, which might be advantageously introduced into practice, whether with a view to their brilliancy or fixedness, attending in those instances also, to the comparative facility and cheapness of Dr. GORDON's mode of dying, with the modes now in use?

A. There certainly are; and equal in brilliancy, fixedness, cheapness, and facility in practice.

10. Q. Has Dr. Gordon shewn you, but never tried in your presence, specimens of cloths of any other colours, which, if produced from indigenous plants, &c. &c. as above mentioned, would be acquisitions of importance to the woollen manufacture, and what are these colours or any of them?

A. The Doctor has shewn us his red, with the different colours depending thereon, which will be an acquisition of great importance to the woollen manufacture, if they can be produced from *indigenous plants*.

SIGNED

J. Buckley,	J. Buckley and Co.	J. and J. Radcliff,
S. Wrigley,	W. Shaw,	J. Harrop,
J. and J. Lees,	R Howard and Son,	J. Wild,
J. and Tho. Harrop	J. Lees,	R. Kinder,
G. Shaw,	H. Shaw,	B. Mellor and Son.
T. Shaw,	J. and W. Knight,	

Saddleworth, April 15, 1791.